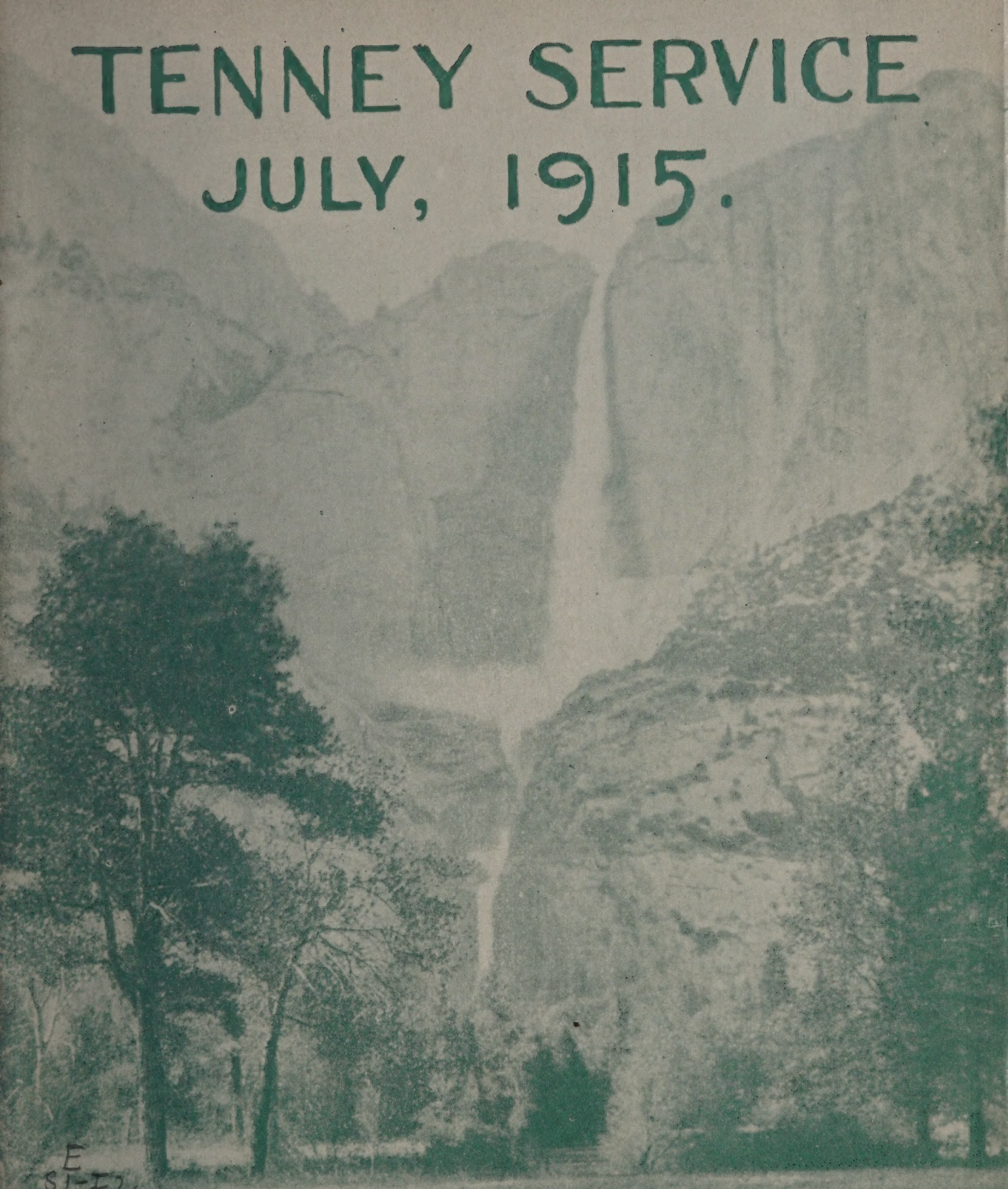
TENNEY SERVICE
JULY, 1915.



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"FROM COAST TO COAST"

by John West.

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TENNEY SERVICE

Vol. II **Boston, Mass., July, 1915** **No. 7**

FROM COAST TO COAST

By John West, New Business Mgr.,
Charles H. Tenney & Company

THE opportunity afforded delegates to the Thirty-Eighth Convention of the National Electric Light Association at San Francisco, June 7th to June 14th inclusive, to see a variety of the most interesting portions of the United States and the Canadian Rockies was unusual, and a brief report of the tour of the "Red Special" will be of interest to the readers of Tenney Service.

The "Red Special" left New York May 24th at noon time, and the New England party, consisitng of fourteen persons, which left Boston at 10 a.m. of the same day, joined the "Red Special" at Albany at 3.44 p.m. The train itself consisted of all steel cars, a baggage and supply car, a club car, nine compartment sleepers, two dining cars and an observation car.

The first stage of the journey was made over the New York Central lines, and here the delegates were delighted with the scenery along the beautiful Mohawk Valley. At Schenectady a party of the General Electric Company's representatives boarded the train, and at Toledo a number of delegates from Ohio and Michigan joined the party.

We stopped at Chicago only long enough to have the train thoroughly inspected and transferred to the C. B. & Q. Railroad, over whose lines we proceeded to Keokuk, Iowa. A terrific thunder storm had followed us all day long, but when we arrived at Keokuk the clouds lifted for about an hour, which enabled us to have a pleasant view of the station and surroundings.

The plant of the Mississippi Power Company and the government owned steamboat lock at Keokuk are worthy of brief description. Engineering work was begun in January, 1911.

The Power House at Keokuk

Only one-half of the power house is now completed. The dam, power house, lock, dry dock, sea wall and ice fender are all one concrete monolith, with a total linear measurement of 13,185 feet, or two and a half miles. The dam across the Mississippi is in total length 4,649 feet and is 29 feet wide at the top and 42 feet wide at the bottom. The height of the structure is 53 feet. It is composed of 119 arched spans with piers six feet thick and each span 30 feet inside. The up-stream face of the

dam is vertical, and the down-stream face of spillways an ogee curve. The dam is keyed into the limestone bottom of the river about five feet.

The power house, (picture of which is shown below) contains 15 main generating units, each unit of 9000 K.V.A. capacity at .8 power factor, 11,000 volts, 25 cycles, running at 57.7 revolutions per minute. They are of the vertical type, direct-connected to specially designed water

Interior Keokuk Plant, showing vertical generators

wheels of the Francis type; capacity 10,000 horse power; rating based upon a head of 32 feet. Each of these water wheels has 16 buckets and the diameter at buckets is 16 feet 2 inches. The current is stepped up from 11,000 volts to 110,000 volts. The power zone served from this plant is supplied over two systems, a line extending northward to Burlington under a pressure of 11,000 volts, and a transmission line extending to St. Louis and southward at 110,000 volts. The line to St. Louis crosses the river from the plant with a span of 2,800 feet to

From left to right—James Vahey, Engineer, Boston Edison Co.; John West and L. D. Gibbs, Publicity Manager, Boston Edison Co.

two towers on the Illinois shore. Its length is 144 miles and is built in a right of way 100 feet wide bought from 451 different persons and containing 1,820 acres of farm land and 44 town lots. The line consists of six cables and the guard wire. Each cable

Entrance to Hotel Pottes, Santa Barbara

is ⅝ inches in diameter and consists of 19 twisted wires of copper.

The "Red Special" party, after a tour of inspection, were entertained with a light lunch and the Stone & Webster Engineers gave a special demonstration of the operation of the lock.

The principal feature of the steamboat lock is the special type of gate which is used. This gate which was designed by Mr. Hugh L. Cooper, Chief Engineer, is operated vertically and by compressed air.

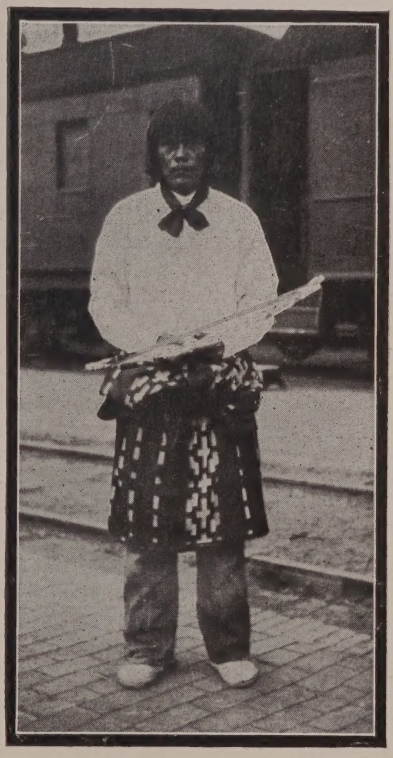
We left Keokuk about 9 o'clock at night and arrived in Kansas City at 6 in the morning. Here our train was placed on the lines of the Atchison, Topeka and Santa Fe Railroad. All day long through Kansas we were accompanied by severe electrical storms and torrential rains which were not unwelcome because there was no dust and the air was clear so we were enabled to enjoy a rather unusual view of the alfalfa fields and the broad, fertile prairie lands of this most productive state.

It is interesting to note that in stormy weather, all the cattle and horses browsing on the praires turn their backs to the wind, so the direction of the wind could be told from the train by the position of the live stock.

The country here is rolling and sparsely settled. In western Kansas one begins to be impressed with the courage of the old settlers who first made their way across the continent in their canvas covered prairie schooners, a type of wagon which is still used in Kansas and on the Western Plains. We awoke as our train was going through Raton Pass in southeastern Colorado. It required five locomotives to take the "Red Special" through Raton Pass, and the speed was necessarily slow.

Here the scenery is entirely different from Kansas. The mountains rise up on all sides and snow could be seen on the tops of some of the higher ones.

We entered New Mexico during the morning and gradually dropped down through broad sandy prairies, flanked by mountain ranges, into the valley of the Rio Grande. There were numerous prairie dogs alongside of



"Antonio"—full blooded Hopi—Albuquerque

the railroad track. They are queer little creatures, sitting up on their hind legs opposite their burrows, the majority of them disappearing instantly when the noise of the train reached them.

The country here reminds one of many of Remington's Indian pictures. Towns of 200 or 300 inhabitants, consisting largely of half-breeds and Indians, were passed. Approaching Albuquerque, we no-

ticed that some farming had been done. When we arrived at the depot we were all very glad to leave the train for a rest and were much interested in the Indian Museum, the State College of New Mexico and the old Spanish Missions.

There is a large colony of Hopi Indians at Albuquerque and a party of them were at the depot selling bows and arrows, Indian pottery, blankets and hammered silver trinkets. The accompanying picture of a full blooded Hopi, Antonio by name, was taken at the railroad station.

Leaving Albuquerque, the train passed through miles and miles of sage brush and mesa, flat prairies on each side of the track, with formations that looked like huge fortresses scattered through the prairies. In some places were large beds of black lava which had come down from the volcanic eruptions of long ago. We could see Indian pueblos made of mud, with their quaint ladders leading from level to level, Indian children herding sheep and goats, and ponies scampering away from their grazing, disturbed by the noise of the train.

In the night time we entered Arizona and awoke to find ourselves arriving at Grand Canyon. Grand Canyon is one of the most wonderful natural formations in the world. It is a great gorge 217 miles in length, formed by the Colorado River cutting through a high plateau. The coloring and structure of the buttes and crags of the Canyon are simply marvelous. The river channel is about 6,000 feet below the point of view, and the river itself, which seems like a silver thread, is actually two miles in width. The opposite side of the Canyon is 13 miles away, but on account of the clear atmosphere and the unusual formation, it does not seem nearly this distance. The party had meals at the El Tovar Hotel, a superbly equipped resort hotel. All the water used in this hotel is brought in tank cars over the railroad from a point 112 miles distant.

Exhausted from the strenuous day of sight seeing at the Grand Canyon, we were glad to go aboard the train and to bed and proceed on our journey through Arizona and cross the Mohave Desert in southern California. We escaped a good part of the monotony of the desert in the night time, but those of us who were up early in the morning had an all suffiicent view of the stretches and stretches of sand without a sign of vegetation or life of any kind.

At the entrance to Death Valley we were interested by a large wagon standing opposite the railroad track. This was the famous "twenty mule team" wagon used to haul borax to the railroad from the mountains of Death Valley before the branch line into the valley was built.

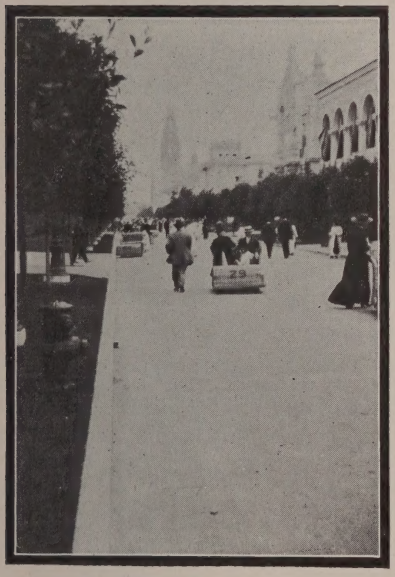
All through this eastern section of southern California the country is a semi-desert, but there are mountain ranges to relieve the bleak aspect, and the railroad stations and the Fred Harvey Hotels, which are a part of the Santa Fe system, are perfect oases with green lawns and concrete buildings in the Spanish Mission style.

About noontime we came into the farming country and soon arrived at Riverside. Riverside is the centre of the orange industry in southern California, and the Glenwood Mission Inn is the most wonderful hotel in the West. It is a modern Alhambra, with terraced roofs, overhanging balconies and Spanish court yards where roses of many colors match their brilliancy with the macaws and parrots of brilliant plumage. There are panels used in the interior section of the hotel which were taken from a church in the south of Spain in 1400, and some

of the trophies which deck the music room are more than 300 years old and have been collected from Spanish castles and from the old Mexican Missions of southern California.

We were interested by the street lighting in Riverside. The posts are of the Mission type and the reflectors used on the lamps are copies of Mission bells.

Back of Riverside is Mount Rubidoux, famous for the annual pilgrimage made to its summit on Easter Sunday morning by thousands of



At the Panama California Exposition, San Diego, Cal.

people who climb up on foot to join in prayer.

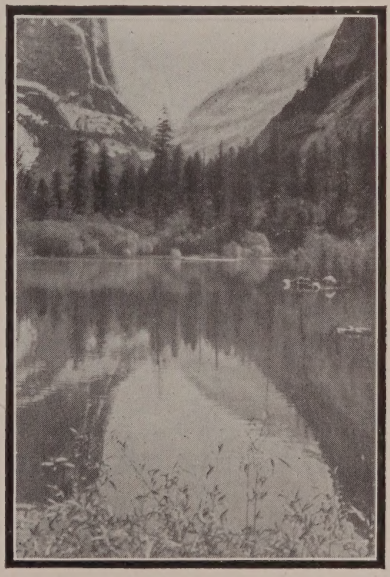
After seeing the hotel and taking an automobile tour of Riverside, we again boarded our train and passed through miles and miles of orange, lemon and walnut groves, all irrigated by a system of small canals.

Late in the afternoon the temperature suddenly changed, and almost before we realized it our train emerged from the hills and skirted the shore of the Pacific Ocean. We were somewhat late in arriving at San Diego, reaching there about 6.30

Sentinel Hotel, Yosemite Valley

p.m. We left the train here for two days, the party all being transferred by trolley and ferry to the Del Coronado Hotel at Coronado Beach.

The Island of Coronado is, in fact, a South Sea island, with palms and



Mirror Lake, Yosemite Valley

beautiful flowers enhancing the attractive bungalow homes; a vacation climate the year round, and Ho-

tel Del Coronado, one of the leading hostelries of the Pacific.

There was a dance after dinner at the hotel, which was participated in by a number of the United States army aviators, who have their practice camp on an island in San Diego Bay.

Sunday was spent in sight-seeing, and Sunday afternoon a large number of our party drove 16 miles over very poor roads into Tijuana, Mexico, which is just over the border in lower California. This is the toughest town we saw on our trip, and reminds one of the western stories read in popular magazines. The buildings here are all frame, one-story shacks, most of them bar rooms containing a dance hall and all kinds of gambling devices. There were a number of Mexican soldiers here, with their faded uniforms and most of them barefooted. They have built a fort to resist the Villa forces. The fort is made of mud, in Mission style. The whole scene would serve as a stage setting for a comic opera.

Monday morning a special boat took us for a tour of the harbor, and in the afternoon we were the guests of the Exposition Company for a tour of the exposition buildings, with a reception in the California building and a dinner and dance at the Cristoble Cafe on the "Isthmus." The exposition is beautiful, especially the architecture, which is all carried out on the Spanish Mission style.

In the evening we took in the amusements on the "Isthmus" and boarded our train at midnight, arriving at Pasadena in the morning. Here we stopped at the New Maryland Hotel and spent our time in automobiles, visiting Los Angeles, Universal City, where the moving pictures are made, and San Fernando Valley, Tapango Canyon, Santa Monica, Venice and Ocean Beach. The writer was especially fortunate in seeing a wildcat in Topanga Canyon, the road through which had been opened only one week at the time of our passing through. Pasadena is one of the garden cities of the United States. One section is called "Millionaire's Mile." The homes in this section are owned by some of the wealthiest men in the United States, among them Wrigley of Spearmint Gum fame, and Adolphus Busch of the Anhauser-Busch Brewing Company.

Los Angeles, to the easterner, is a revelation of progress. Numerous modern sky-scrappers, first class local interurban trolley service, fine hotels, and an air of business and bustle quite comparable with New York or London.

At the New Maryland Hotel a dance was given in the evening, but a number of our party were so busy seeing the sights that they were unable to attend.

We left Pasadena at 8 o'clock in the morning, ahead of our schedule on account of a cave-in on the road in the Yosemite Valley, which resulted in our taking a roundabout way along the shore, which gave us an opportunity to see more of the coast of California.

At noon we stopped at the Hotel Potter at Santa Barbara. This is a beautiful hotel overlooking the ocean, and it is only a short ride to the famous Santa Barbara Mission, which could be seen from the roof of the hotel.

In the afternoon we skirted the coast going northward. The scenery here is beautiful, the railroad and automobile road running parallel with the ocean and the mountains rising in the background. One of the most interesting things we saw was a number of oil wells driven into the ocean at a distance of from 100 to 1,000 feet from the shore. They are pumping oil from the bed of the ocean beneath the water, and I believe California is the only place in the world where this is done.

About 4 o'clock we left the coast and started inland towards Yosemite, climbing steep grades over the mountains. Just before reaching Merced in the morning we saw an enormous gold dredge on the Merced River, which is operated at a profit of $50,000 per month. At Merced Falls we were much interested in a very large saw mill, occupying acres on each side of the railroad track.

We arrived at El Portal in time for lunch and directly afterwards entered the Yosemite Valley aboard large automobile busses.

The Yosemite Valley contained the most beautiful scenery on the trip and we were particularly fortunate in arriving there at a time when the streams were high. The road winds from El Portal along the base of enormous cliffs over which, like sil-

Reflection of the Tower of Jewels in the West Lagoon of the South Garden—Panama Pacific Exposition

ver threads, drop waterfalls more beautiful than I can describe. There is one rock formation which is almost an exact image of an elephant's head, and this is known as "The elephant." The trees are enormous, the Toulumme and Miraposa groups being world famous for their size.

The "Red Special" party occupied Lost Arrow Camp, which is beneath Yosemite Falls, (picture of which is given on the cover of this issue). A bonfire was built and all gathered around the campfire in the evening, singing songs and resting from the trip. Next morning we embarked in four horse stages for Mirror Lake and Happy Isles, and some of the party went burro back along the trail to Sierra Point. Riding back in the auto busses to El Portal many beautiful scenes which we had overlooked coming up, were noticed, and we embarked on our train after dinner feeling that nothing could be more beautiful than the Yosemite Valley.

Morning found us in Oakland, where we took the ferry across the bay to San Francisco, and as our stay in San Francisco for one week was not a part of the "Red Special" tour, we went to our several hotels and spent Saturday resting from the journey and making our plans for the week. As the papers which were read at the National Electric Light Association Convention are already published, I will omit any further reference to them than the convention program, which follows:

PROGRAMME

General, Executive, Technical, Accounting and Hydroelectric Sessions

Tuesday, 10 A.M.

Main Hall

First General Session

President Scott, Chairman.
E. W. Lloyd, Vice-Chairman.

1. Welcome to the City by the Mayor, Hon. J. Rolph, Jr.
2. Welcome to the Coast—John A. Britton, San Francisco, Pacific Gas & Electric Company.
3. Address of President Scott.
4. Announcements.
5. Report of Committee on Organization of the Industry—George Williams, New York, Doherty Operating Company.
6. Report of the Secretary—T. C. Martin, New York.
7. Report of Insurance Expert (Printed)—W. H. Blood, Jr., Boston, Stone & Webster Corporation.
8. Report of Committee on Progress (Printed)—T. C. Martin, New York.
9. Report on Question Box—S. A. Sewall, New York.
10. Report of Committee on Question Box Revision—A. J. Campbell, Waterbury, Conn., United Electric Light & Water Co.
11. Report of Committee on Education (Printed)—J. F. Gilchrist, Chicago, Commonwealth Edison Company.
12. Paper: Revivals (Printed) — Paul Lupke, Trenton, N. J., Public Service Electric Company.

Tuesday, 2.30 P.M.

Main Hall

First Technical Session

President Scott, Chairman.
W. C. H. Eglin, Vice-Chairman.

1. Report of Committee on Meters (Printed)—C. G. Durfee, Rochester, N. Y., Rochester Railway & Light Company.
2. Report of Committee on Electrical Apparatus (Printed)—L. L. Elden, Boston, Edison Electric Illuminating Company.
3. Report of Committee on Grounding Secondaries—Paul Spencer, Philadelphia, United Gas Improvement Company.
4. Paper: Application of the Diversity Factor (Printed)—H. B. Gear, Chicago, Commonwealth Edison Company
5. Address: Features of the Lighting of the Panama-Pacific Exposition (Illustrated by Lantern)—W. D'A. Ryan, Schenectady, N. Y., General Electric Company, Illumination Engineer of the Exposition.

Tuesday, 2.30 P.M.

Fifth Floor

First Accounting Session

E. W. Lloyd, Chairman.
H. M. Edwards, Vice-Chairman.

1. Chairman's Address—H. M. Edwards, New York, New York Edison Company.
2. Report of the Library Committee—E. J. Allegaert, Newark, N. J., Public Service Electric Company.
3. Report of the Question Box Committee—E. C. Scobell, Rochester, N. Y., Rochester Railway & Light Company.
4. Report of the Committee on N. E. L. A. Uniform System of Accounts—J. L. Bailey, Baltimore, Md., Consolidated Gas, Electric, Light & Power Company.
5. Paper: Some Opportunities of Public Utility Accountants (Printed)—L. R. Reynolds, San Francisco, (Auditor California Railroad Commission).

Tuesday, 2.30 P.M.

Fourth Floor

First Commercial Session

L. D. Gibbs, Chairman.
D. Burnett, Vice-Chairman.

1. Chairman's Address (Printed)—Douglass Burnett, Baltimore, Md., Consolidated Gas & Electric Light & Power Company.

2. Report of Committee on Foreign Relations (Printed)—Douglass Burnett.
3. Report of Commercial Section Finance Committee (Printed)—J. F. Becker, New York, United Electric Light & Power Company.
4. Report of Membership Committee (Printed)—J. G. Learned, Chicago, Public Service Company of Northern Illinois.
5. Report of Publications Committee (Printed)—E. A. Edkins, Chicago, Commonwealth Edison Company.

5A Report of Sub-Committee on Salesman's Handbook—C. J. Russell, Philadelphia, Philadelphia Electric Company.

6. Report of Committee on Education of Salesmen (Printed)—F. R. Jenkins, Chicago, Central Station Institute.
7. Report of Committee on Commercial Department Terminology (Printed)—M. E. Turner, Cleveland, Ohio, Cleveland Electric Illuminating Co.

Wednesday, 10 A.M.
Fourth Floor

First Hydroelectric and Second Technical Sessions

H. A. Wagner, Chairman.
W. C. H. Eglin, Vice-Chairman.

1. Address of Chairman of Hydroelectric Committee (Printed)—M. R. Bump, New York, Doherty Operating Company.
2. Report of Committee on Hydroelectric and Transmission Progress (Printed)—T. C. Martin, New York.
3. Report of Committee on Prime Movers (Printed)—I. E. Moultrop, Boston, Edison Electric Illuminatng Company.
4. Paper: Practice in High-Head Hydraulic Plants (Printed)—J. P. Jollyman, San Francisco, Cal., Pacific Gas & Electric Company.
5. Paper: Analysis of Water Wheel Governor Effort (Printed) — E. D. Searing, Portland, Ore., Portland Railway, Light & Power Co.
6. Paper: Water Power Development on the Pacific Coast (Printed) — P. M. Downing, San Francisco, Pacific Gas & Electric Company.

Wednesday, 10 A.M.
Main Hall

Second Commercial Session

President Scott, Chairman.
D. Burnett, Vice-Chairman.

1. Address—C. C. Moore, President Panama-Pacific Exposition.
2. Report of Power Sales Committee on Typical Sales Development in the West (Printed)—J. M. McDougal, San Francisco, Pacific Gas & Electric Company.
3. Report of Committee on Merchandising and Recent Development of Electric Appliances (Printed) — R. R. Young, Newark, N. J., Public Service Electric Company.

Wednesday, 10 A.M.
Fifth Floor

Second Accounting Session

L. D. Gibbs, Chairman.
H. M. Edwards, Vice-Chairman.

1. Paper: Workmen's Compensation Insurance (Printed)—Walter G. Cowles, Hartford, Conn., Vice-President Travelers' Insurance Company.
2. Paper: Electric Vehicle Cost Accounting (Printed)—W. P. Kennedy, New York, Electric Vehicle Expert.
3. Paper: Record of Property or Construction Expenditures (Printed)—P. R. Ferguson, Riverside, Cal., Southern Sierras Power Company.

Wednesday, 12.30 P.M.
Main Hall

National Executive Session

President Scott, Chairman.
E. W. Lloyd, Vice-Chairman.

1. Presentation of Treasurer's Report—W. F. Wells, Brooklyn, N. Y., Edison Electric Illuminating Company.
2. Election of Nominating Committee.

Wednesday, 2.30 P.M.
Main Hall

Third Commercial Session

E. W. Lloyd, Chairman.
D. Burnett, Vice-Chairman.

1. Report of Lamp Committee (Printed) F. W. Smith, New York, United Electric Light & Power Company.
2. Report of Committee on Wiring of Existing Buildings (Printed)—R. S. Hale, Boston, Edison Electric Illuminating Company.

Wednesday, 2.30 P.M.
Fourth Floor

Second Hydroelectric and Third Technical Session

President Scott, Chairman.
O. B. Coldwell, Vice-Chairman.

1. Report of Committee on Overhead Line Construction—Thomas Sproule, Philadelphia, Philadelphia Electric Company.
2. Paper: Electric Line Distribution in the Pacific Northwestern States (Printed)—J. C. Martin, Portland, Ore., Pacific Power & Light Company.
3. Report of Hydroelectric Sub-Committee on High Tension Transmission and Construction (Printed)—R. J. McClelland, New York, Electric Bond & Share Company.
4. Report of Hydroelectric Sub-Committee on High Tension Apparatus—W. N. Ryerson, Duluth, Minn., Great Northern Power Company.
5. Report of Hydroelectric Sub-Committee on Main Line Electrification of Railroads—B. F. Wood, New York, United Gas & Electric Corporation.

Thursday, 10 A.M.
Fifth Floor

Third Accounting Session

President Scott, Chairman.
H. M. Edwards, Vice-Chairman.

1. Report of Committee on Cost Accounting—J. M. Gulick, Chicago, Commonwealth Edison Company.
2. Paper: Analytical Accounting for Central Station Purposes (Printed)—O. B. Coldwell, Portland, Ore., Portland Railway & Light Company.
3. Paper: Statistical Machines — W. E. Freeman, New York, New York Edison Company.
4. Presentation and Adoption of New Accounting Constitution.
5. Report of Nominating Committee.
6. Installation of Section Officers.
7. Adjournment.

Thursday, 10 A.M.
Main Hall
Fourth Commercial Session

H. A. Wagner, Chairman.
D. Burnett, Vice-Chairman.

1. Report of Rate Research Committee (Printed)—R. S. Hale, Boston, Edison Electric Illuminating Company.
2. Report of Power Sales Bureau of the Commercial Section (Printed)—C. J. Russell, Philadelphia, Philadelphia Electric Company.
3. Paper: The Commercial Application of Resistance Furnaces (Printed)—C. W. Bartlett, Schenectady, N. Y., General Electric Company.
4. Paper: A Stassano Furnace Installation at Redondo, Cal. (Printed)—W. M. McKnight, Redondo Beach, Cal., Southern California Edison Co.
5. Paper: Electric Furnace Power Loads (Printed)—F. T. Snyder, Chicago, Snyder Electric Furnace Company.

Thursday, 10 A.M.
Fourth Floor
Fourth Technical Session

E. W. Lloyd, Chairman.
R. S. Orr, Vice-Chairman.

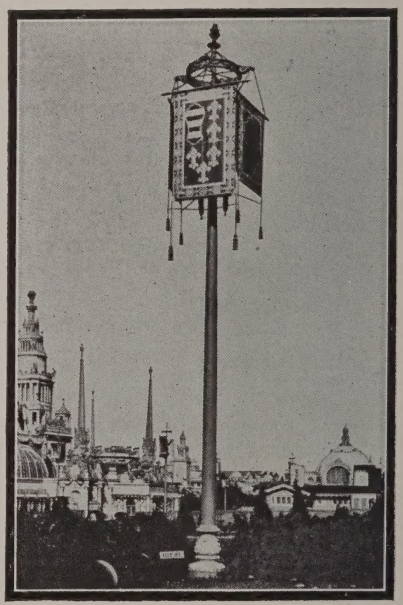
1. Report of Committee on Terminology (Printed) — A. S. McAllister, New York, Editor Electrical World.
2. Report of Committee on Street Lighting (Printed)—J. W. Lieb, New York, New York Edison Company.
3. Report of Committee on Underground Construction (Printed) — P. Torchio, New York, New York Edison Company.
4. Report of Committee on Accident Prevention (Printed)—M. J. Insull, Chicago, Middle West Utilities Company.
5. Paper: Opportunities of the Public Service Companies in General Accident Prevention (Printed) — C. B. Scott, Chicago, Middle West Utilities Company.
6. Adjournment.

The Panama-Pacific Exposition at San Francisco exceeds in beauty and exhibition facilities any other exposition ever held in this country or in the world. The lighting effects are particularly marvelous.

One of the noticeable things about the exposition is the absence of a Palace of Electricity, but this is not surprising, for the reason that electricity is so generally used throughout the exposition by the exhibitors that there is no necessity for a further display of electricity. The exposition itself is an electrical exposition.

The entertainment committee of the Pacific Gas & Electric Company of San Francisco provided many entertainments for the ladies, including automobile rides through the Presidio and Golden Gate Park, luncheon at the Cliff House, and an all day trip to Mount Tamalpais from which a view of San Francisco and the entire surrounding country was obtained.

We were welcomed to San Francisco on Sunday morning at ten minutes before ten by a slight earthquake which lasted for about a minute. The writer felt the shock distinctly and was afterwards told that many people rushed out of their homes, terrorized by the severity of the quake. It is interesting to know that although San Francisco has one of the finest water systems for fire protection in the country, they have constructed enormous tanks beneath the streets so that in case of a severe shock injuring the water mains, there will always be a large quantity of water available from which the engines may pump.



Banner Standard for G. E. Ornamental Luminous Arc Lamps

One of the sights of San Francisco is "Chinatown," which is not the Chinatown of old (for the opium joints have been done away with), but rather retains an oriental atmosphere with all modern conveniences. There are 15,000 Chinese in Chinatown. Their shops are most interesting. Their drug stores display in the windows jars of rattlesnake oil with a real rattlesnake preserved therein to prove that it is genuine. All kinds of dried herbs and medicines are kept in unlabeled drawers, from which one infers that either the Chinese memory is absolutely perfect, or their regard for "safety first" is negligible.

In their food shops they sell eggs which are imported from China; also dried oysters strung on hoops, and other delicacies which, to the Occidental, would be appetite destroyers.

The Chinese theatre is very interesting. The scenery is shifted while the play is going on. No females appear in the cast, but the men impersonate women. All during the play a loud clamor is kept up on gongs and flutes and a kind of one string banjo which is played like a violin. The principal object of the actor seems to be to raise his voice above the din.

Adjoining Chinatown is Barbary Coast, famous as the place of origin of the new dances.

We left San Francisco Saturday night at 8 o'clock and Sunday noon arrived at Shasta Springs. Here we all disembarked and drank freely of the naturally carbonated water from this spring.

The country here is very mountainous, and Mount Shasta, perpetually snow clad, rising 14,442 feet above the level of the sea, is well worth a trip to the West to see.

All afternoon we continued through the mountains and in the morning entered the State of Oregon, with its rolling ranch lands, fine orchards and valuable farms.

At Portland we were entertained by the Portland Railway, Light & Power Co., which provided special cars for a sight-seeing trip around the city, culminating at Council Hill, upon which an observation tower has been built and from which could be seen Mount Hood and other snow clad peaks, so far away that their tops appear to be part of the clouds.

The City of Portland is a rose bower, every residence having yards of roses and every home front trellised with roses.

We continued our trip after luncheon and passing through Tacoma, had a fine view of Mount Rainer, the most beautiful of all the peaks we had seen.

We arrived at Seattle at dusk and immediately transferred to the Hotel Washington for dinner. After dinner we were the guests of the Puget Sound Traction, Light & Power Company in an automobile ride around the city. We had a wonderful view from Queen Anne Hill of the city by night. Seattle is a splendid city, boasting a forty-two story office building and one of the finest harbors on the Pacific Coast with a total available wharfage of fourteen miles, and also the famous Totem Pole.

We boarded the "Princess Victoria," one of the Canadian Pacific steamers, at 9 o'clock in the morning and sailed down Puget Sound, crossing the United States border into British Columbia just before we arrived at Victoria.

Victoria, situated on an island, is a modern city, having one of the finest hotels (The Empress) in the country and beautiful Parliament buildings. Those of us who were from Boston took extra pleasure in being able to climb another "Beacon Hill."

Here we saw sailors from H. M. S.

"Kent," destroyer of the cruiser "Emden," at rifle practice. We also saw a large number of Canadian infantry men in practice camp.

We continued on the boat from Victoria down Puget Sound through some of the most beautiful island scenery imaginable, arriving at Vancouver in time for dinner at the Vancouver Hotel. Here a banquet and cabaret was tendered us by the British Columbia Electric Railway Company, after which there was a dance. A party of us had taken an automobile before dinner and had seen the city and Stanley Park, which is one of the most beautiful in Canada. In this park we saw trees 72 feet in circumference. It is not dark in Vancouver at this season of the year until about 9.30 p.m., and we were much interested to see a number of bathers, despite the evening chill, swimming at a bathing beach on English Bay.

Vancouver is one of the finest growing cities in the West. We were told that twelve years ago there were but 300 inhabitants; today they claim 40,000. We left Vancouver at midnight and in the morning found ourselves winding along the Fraser River Valley, which is in reality a canyon between the mountains. The scenery here is massive. Mountains tower high above the railroad on each side, and down along the stream are Indians fishing for salmon from the rocks, while the waters of the river, dashed into foam against the rocky bed, swirl musically along on their rush to Puget Sound.

All the railroad bridges along the Canadian Pacific Railroad are guarded by the Canadian Militia and each company takes great pride in keeping its camp in fine order and have built signs of white rocks in the turf along side of the railroad tracks designating their company name and numeral.

We crossed Spence's Bridge where the old wagon road leads up to the Cariboo gold country and soon entered Black Canyon, a winding gorge suggesting gloom and desolation.

At Ashcroft are seen a number of freight wagons drawn by yokes of oxen and long strings of pack mules, for this is the method of transportation of supplies into the gold country.

After leaving Ashcroft the valley widens out and the railroad follows along the shore of Kamloops Lake for about twenty miles. We stopped for a short time at Kamloops and then continued through a very fertile valley where numerous apple orchards and cattle ranches were seen. It was night time when we arrived at Revelstoke and rain had begun to fall. Our train was parked here for the night, and leaving early in the morning, we arrived about 10 a.m. at Glazier, an altitude of 4,086 feet. Although a drizzling rain was falling, no damper was put upon the enthusiasm of the party. All immediately set out for a climb to the foot of Illecillewaet Glacier. The mountains seen from this trail are of wondrous beauty. Mount Sir Donald, 10,808 feet, rises like a pyramid, and we could see the western end of the Hermit Range and a number of other snow clad towering mountain peaks. After a climb of about two miles we came to the foot of the Glacier. The name "Illecillewaet" means in Indian "Sweet Waters Rushing Westward." This glacier is different from any other in the world in that it has no maraine. Here we found Alpine guides who assisted us up to the ice cave which they had chopped into the glacier itself. We spent about an hour here, ascending the ice as far as it was safe to go without hobnailed boots. Then we hurried back to the railroad station, our boots covered with mud and our clothes wringing wet from the rain; but it was an experience

which we were glad to have taken, despite the discomfort.

Our train continued through Rogers' Pass and Golden, going through snow sheds along the sides of mountains and emerging to afford ever and again another wonderful view of the Selkirks and Purcell ranges. We arrived at Field about supper time, and here our train was again parked for the night. All of the party went to the hotel, and after dinner brought our graphophone over from the train and had an impromptu dance, which was very much enjoyed. In the morning a number took carriages to Emerald Lake, and a few of us who were fortunate enough to remain at

C. P. R. Steamer "Princess Victoria"

the depot, had an excellent view through the binoculars of a number of mountain goat browsing at the snow line along the side of Mount Field. The train continued its journey and at 10 a.m. entered the new spiral tunnel under Mount Ogden. Passing through this tunnel, we soon entered the corkscrew tunnel in Cathedral Mountain, and after describing an elliptic curve, emerged again to run along the Kicking Horse Valley. The railroad engineering at this point is the pride of the Canadian Pacific system. The length of the two tunnels is one and one-quarter miles, and the length of cutting outside of the tunnels seven miles. The reduction in grade was from 4.5 to 2.2, and the work of putting these tunnels through the mountains cost $1,500,000. The traveller through this section of the moun-

The "Red Special" at the Great Divide

tains, entering these tunnels to emerge and look far below at the same track over which he has passed only a short while before, has the sensation of not knowing whether he

A glimpse at Lake Louise

is coming or going, back or forth, up or down.

Our train stopped at the Great Divide and we drank of the sparkling

stream which separates here into two waters, one flowing to the Pacific and the other to Hudson Bay. Shortly thereafter we arrived at Lake Louise. Here we got aboard gasoline railroad cars which ascend the mountains for three miles to the Chateau Lake Louise.

Lake Louise is a turquoise gem set among snow clad and rock faced mountains which sheer off almost perpendicularly into the lake, casting their brown and white reflections across the limpid blue waters. The hotel and the lake are really in cloud land.

In the evening a special dinner was arranged and a cabaret show given by members of the party. After the dinner and show, a dance was held, and the evening's entertainment culminated with a lottery dance, the prizes for which were beautiful Japanese fans given to those ladies who held the lucky numbers.

In the morning after breakfast, we coasted down the mountain side to our train and continued along the valley referred to by one writer as "an amphitheatre of scenic glory." We could see Storm Mountain, 10,309 feet, and the snow capped dome of Mount Ball, 10,825 feet; also the towering helmet shaped Mount Temple, 11,626 feet, the highest and most imposing of this wonderful range.

At Banff, which is in the Canadian National Park Reservation, we coached to the hotel, one of the most beautiful hostelries owned by the Canadian Pacific Railway. From the terrace of the hotel could be seen the Bow River, flowing towards the huge Cascade Mountain to the northward. The water from the hot sulphur springs is piped to the hotel and flows into open air swimming pools terraced and protected from the winds by huge panes of plate glass. A number of our party immediately donned bathing suits and had a wonderful time swimming in these pools, while others climbed to the bank of the Bow River to view the falls.

At 4 o'clock we left Banff and were greatly surprised to find ourselves soon emerging upon the flat plains of Central Alberta, leading down to Calgary. The abrupt change from mountainous country to rolling plains was accomplished in an incredibly short time. One seems to literally step from the mountains to the plains.

At Calgary the train stopped long enough for the more nimble of the party to rush out to the Canadian Pacific Hotel Pallister and we were well repaid for our trouble. This hotel is built in the French Renaissance stye and is one of the largest and most up-to-date hotels in the West.

Calgary is a city of 80,000 population and we counted in the car repair shops when leaving the city, 246 locomotives, idle because of the reduction in freight business due to general business depression.

The country through Alberta and in the Province of Saskatchewan affords a vista remarkably like that of the ocean. The clouds project their purple shadows upon the green fields and the ever changing coloring thus produced is startlingly like billowing waves. Here and there a settler's cottage appears a lone dot of white, and nearby herds of cattle and horses are seen. Each small settlement has its water tower and alongside of the railroad track may be seen one or a number of grain elevators.

This is a part of the much exploited Northwest farming country of Canada, policed by the Canadian Northwest police, a fine body of men, picked for their ability to capture any lawbreaker whom they ever attempted to take. They made an un-

usually picturesque appearance strolling along the railroad platform, booted and spurred, and clad in crimson coats and sombrero hats.

We arrived at Portal, where the Soo Line took charge of our train, at 2 p.m. on Sunday, June 20th, and, although we still had approximately 2,000 miles to travel, there was a feeling of being almost home when we crossed into the State of North Dakota. The country here immediately became hilly. We saw at every town groups of boys and men playing the great American game.

At about 1 o'clock in the morning our train ran into a landslide, and two hours' time was consumed in digging out the engine and front cars. The great weight of the train undoubtedly saved us from being derailed.

We passed St. Paul early in the morning and arrived at Milwaukee about noon. Coming down the shore of Lake Michigan a bridge party was organized and vacuum cleaners were awarded as prizes to the two making the largest scores.

We arrived at Chicago three hours late, and here one car was dropped and a number of our party from farther East stopped over for business reasons and also for more sight seeing.

Once started on the New York Central road the change in speed was so remarkable as to be commented upon. We had been averaging not more than thirty miles an hour and now our train rushed ahead at the rate of eighty miles an hour, bound to make up the lost three hours. Between Chicago and Albany we recovered two hours and a half, but we had not made up enough time for the Boston party to make connections with the 2.40 train, so we were obliged to stay over in Albany until 5 o'clock and arrived in Boston at 11.15.

The writer was greatly impressed on this trip with the beauty and grandeur of the western part of the United States and the Canadian Rockies; the courage with which the people of San Diego and San Francisco have proceeded to invest millions of dollars in their expositions and the remarkable contrast between the wonderful development exemplified in the Western cities by modern buildings, modern transportation facilities, and all within a short journey, from a vast rugged and almost primeval territory.

The trip across the continent and back was such a pleasure to the writer and to all the members of the "Red Special" party, that the writer has attempted to convey through this article at least a portion of the pleasure which such a trip affords, and trusts that this will be the result of this outline of the "Red Special" tour.

SALEM, A YEAR AFTER HER DEVASTATING FIRE, IS A FIREPROOF CITY AND RICHER THAN EVER.

(Reprinted by permission, from Boston Post, June 26, 1915)

What Salem Has Done Since the Big Fire

BUILDING permits issued, 517.
Taxable value, $6,500,000.

Seventeen miles of new water mains.

Ten-million-gallon reservoir is planned.

Two hundred and twenty-eight new trees planted.

No three-deckers.

No shingled roofs.

Biggest public swimming pool in America, and new playgrounds.

Dozens of streets widened and lengthened.

Fire-proofing of all buildings.

City owns big dock after years of litigation.

Eight new fire houses planned, new apparatus and new hydrants.

New water pressure of 85 pounds.

Thousands of persons flocked to Salem yesterday on the anniversary of the great fire of a year ago, which devastated 251¼ acres, wiped out 99 streets, burned out 15,000 persons, caused many deaths, and cost $15,000,000. Yesterday, instead of the acres of black ruins, visitors beheld street upon street of solid dwellings, imposing business blocks and great fireproof factories, all totalling a greater tax value today than before the fire.

City Shows a "Come-Back"

The streets were gay yesterday with the visiting parties, who walked over the new sidewalks and admired the handsome new buildings. Here and there a lot unrebuilt testified to the great fire's ferocity, but the long vistas of streets showed block upon block of expensive new brick and concrete structures.

Mayor M. J. O'Keefe of Salem said yesterday:

"Salem has shown that she can 'come back.' Today the city is growing as never before, and within a year she will have reached a high water mark of prosperity. Business is booming, employment is plentiful, credit is good, everybody is working and planning to make Salem a synonym for success despite difficulties. The ruined streets are with us every day. We don't forget them for a minute, and until the last charred hearth has been rebuilt we won't rest.

Looming far above the city stands the one ruin that still speaks eloquently of the raging conflagration that started on June 25, 1914, at 1.37 in the afternoon in the great facade of St. Joseph's, its two great towers and its granite statue of St. Joseph outlining bare against the sky, just as they did during the night of the 25th, when the church stood in the very midst of the havoc. The church is today being used for worship, but only in its basement, for the superstructure is not yet rebuilt. But round about this towering, half-ruined church are homes and factories such as many cities would be proud to boast of.

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517 Building Permits

During the year the building department of the city has issued 517 permits. The last one was for the splendid new temple of the Salem

Salem, as it looked while the 251 devastated acres still glowed with intense heat, showing St. Joseph's Church, at Lafayette street, in the heart of the conflagration, with street after street totally wiped out.

Salem, as it looks today, a year after the fire. View of Lafayette street, the heart of the conflagration, showing St. Joseph's Church, surrounded by dozens of new concrete structures covering the burnt-out area completely.

Masons. The building rate for the single month of December was as great as during the most prosperous year in Salem's whole history—a significant fact, showing the immense activity of the citizens of the fire-swept section.

No wooden building shows a shingle roof. They have asbestos, slate or metal roofs, but no shingles are permitted. There must be chimney flue linings, brick nogging on each floor, plasternig of all cornices and furnaces, and there are any number of other requirements that the department at Salem is insisting on, in order that no such fire shall ever again occur in the city.

No more three-deckers is the rule —and there isn't one in the whole rebuilt section. This has led to the development of splendid types of two family and one family homes, and there have been built in the burnt-out district 171 of the latter and 287 of the former kind of dwelling.

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850 New Apartments

Already there have been rebuilt 850 apartments, of the finest type. When the buidings now under way are finished Salem will have constructed 1,400 new homes—considered a record-breaker in the way of quick, but solid construction.

These buildings are all fireproof, hedged in with restructions that aim to make the city henceforth impervious to fire. But in order to protect the city the new regime has arranged for the most efficient kind of water-service.

Already a new reservoir is under way that will store up for emergency 10,000,000 gallons of water. Auxiliary supplies will be arranged for from Ipswich, and the old stations at Wenham wil be replaced with modern appliances. Instead of the 45 or 50 pounds of water-pressure which Salem has had at its best times, the future Salem will have a pressure of 85 pounds—enough to insure constant and powerful streams for the practically inexhaustible water supply which the city will have.

New fire houses have been built—new ones are to be built. New hydrants of the latest type and miles of new iron water mains have been laid and are replacing older mains.

Streets have been widened and new ones laid out. Old streets have been extended. The great dock, down on Salem harbor, which has been fought over for many years, is now the city's property, and it will now be conducted and improved with a view to restoring the city's prestige as a sea-trading city.

A great feature is the swimming pool—the finest in a public park in the country, built by men thrown out of employment by the fire. This pool will be for the citizens, and is to be run by the city. The same workmen have constructed new playgrounds and parks, and have planted 228 new trees to replace some of the 594 shade trees destroyed by the fire.

The loss by the fire to the city of taxable property was 5,300,000. In the past 12 months $6,500,000 worth of taxable property has been rebuilt making the city richer by $1,200,000 than before. The building boom is still on, and permits are being issued every day for buildings of all kinds. The immense new Naumkeag mills, now being constructed will be the finest weaving mills in the country, and will be absolutely fire-proof and sanitary.

CONSTRUCTION WORK AT SALEM ELECTRIC LIGHTING COMPANY'S PLANT

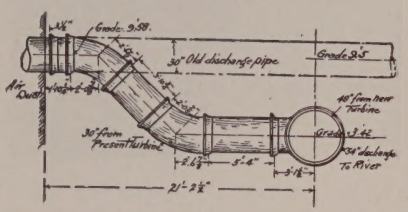
By Arthur J. Harty, Resident Engineer
Charles H. Tenney & Company

DURING the last month a great amount of work has been accomplished at the plant. The general outlook is very favorable—marked progress having been made on all work under construction.

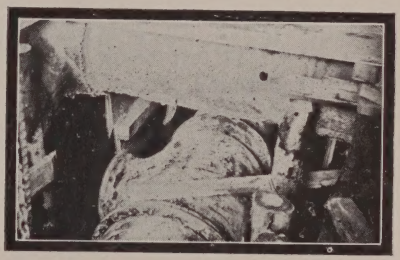
We feel very satisfied in regard to the trouble that hung over us like a dark cloud—the settling of the old boiler room wall, and also the movement of the sea wall during the pile driving, etc.

The accompanying readings shown on page 249 give the detail of the movements of the sea wall from April 28th to May 15th inclusive. In looking at this schedule it will be noticed that the greatest movements occurred during the week ending May 15th. From that date two readings were made, one on June 1st and one on June 17th and showed that all settlements, etc., had stopped. We had also built underneath the old wall three heavily reinforced piers, and these were located about as follows: One opposite numbers 13 and 14, the other opposite 16, 17 and 18 and the last one opposite 20 and 21. These numbers refer to the pile loactions shown on the same sheet as the readings taken at the wall.

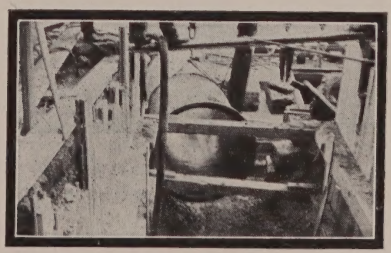
In the old boiler room we had to make a connection from the present condensing pipe which was 30 inches in diameter to accommodate the new turbine to be placed in the engine room. This necessitated the cutting of this pipe to make a connection to the proposed 48-inch for the new turbine, the outlet to the river being 54 inches.



Picture No. 1 shows this pipe as laid.

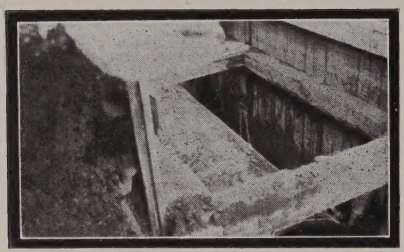


Picture No. 2 shows the tee in position, which is a 48 by 54 by 30 inch. As you look at this picture, you will note above it the old 30 inch. The difference in height between these pipes on their centres is six feet.



No. 3, last piece of 54" pipe being placed in sea wall

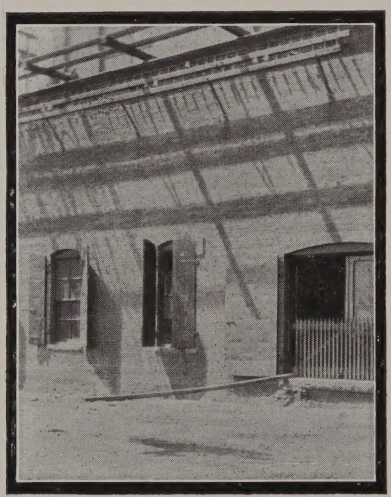
Picture No. 3 shows the last piece of 54-inch pipe being placed by a lighter in the opening in sea wall made to accommodate same.



No. 4, connecting piece of 54" pipe with picture No. 3

Picture No. 4 shows the connecting piece of 54-inch pipe with picture No. 3 before it turns and enters the old boiler room. The grade of this pipe is about 10 feet below the surface of the ground.

The work entailed in doing this change had to be done so as not to



No. 5, switchboard room extension before being changed over to transformer building

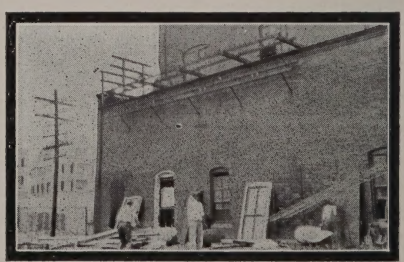
meddle with the operating of the station. We begun at 12 o'clock Tuesday noon, operating on non-condensing water and completed the laying of the pipe at 2 a.m. Wednesday morning, May 26th. The pipe was corked and back-filled Thursday night, May 27th.

No. 6, forms set for the pouring of the walls of new transformer building

The extension to the switchboard room which is to be called the new transformer building is now rapidly

No, 7, walls stripped of the forms ready for the bricklayer

nearing completion, which we hope to have in another week or 10 days practically completed.



No. 8, bricklayers removing windows

Picture No. 5 shows a view taken on the 28th of April before any work was started in this location.

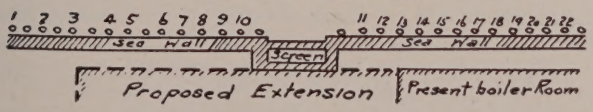
One month later, picture No. 6 shows forms set for the pouring of the walls for this addition.

from the old wall to be placed in the addition. The dimensions of this new building are about 38 feet long, 12 feet wide, and 25 feet high; a tie being made into the existing garage wall at one end, and to the old

READINGS SHOWING MOVEMENT OF SEA WALL DURING PILE DRIVING —

Pile location Number	Day taken and Hour, Readings Made													
	April 28 2.30 P.M.	3.15 P.M.	3.30 P.M.	3.55 P.M.	4.20 P.M.	April 29 9.25 A.M.	May 1st 12 M.	May 3 4 P.M.	May 4 4 P.M.	May 5 4 P.M.	May 11 4 P.M.	May 15 4 P.M.	June 6th 4 P.M.	June 17 4 P.M.
#1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
#2	-	-	-	-	-	-	-	-	-	-	3/16"	3/8"	3/8	3/8
#3	-	-	-	7/16"	13/16	7/8"	7/8"	1"	1 1/4"	1 5/16"	1 5/16"	1 3/8"	1 3/4"	1 3/4
#4	-	1/4"	3/8"	5/8"	1"	1 3/16"	1 3/8"	1 1/4"	1 15/16"	2"	2"	2 1/4"	2 1/4"	2 1/4
#5	-	3/8"	5/8"	13/16"	1 7/16"	1 7/16"	1 3/4"	2 1/8"	2 7/16"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2
#6	-	1/2"	3/4"	1 1/16"	1 1/2"	1 1/2"	1 13/16"	2 5/8"	3"	3 5/16"	3 5/16"	3 5/16"	3 5/16"	3 5/16
#7	-	3/8	5/8"	15/16"	1 1/8"	1 5/16"	1 7/8"	2 5/8"	3 3/16"	3 1/2"	3 5/8"	3 11/16"	3 11/16"	3 11/16
#8	-	1/4"	1/2"	11/16"	13/16"	15/16"	1 9/16"	2 9/16"	3 1/16"	3 11/16"	3 7/8"	4 1/16"	4 1/16"	4 1/16
#9	-	3/16"	3/16"	5/16"	7/16"	9/16"	1 5/16"	2 5/16"	3"	3 1/16"	4"	4 1/16"	4 1/16"	4 1/16
#10	-	3/16"	3/16"	1/4"	1/4"	3/8"	1 1/16"	2 3/16"	3 1/16"	3 5/16"	4 3/16"	4 1/4"	4 1/4"	4 1/4
#11	-	-	-	-	-	-	1/2"	1/2"	7/8"	1 1/4"	2 5/8"	2 3/16"	2 3/16"	2 3/16
#12	-	-	-	-	-	-	5/16"	5/16"	9/16"	1 1/8"	1 7/8"	2 1/16"	2 1/16"	2 1/16
#13	-	-	-	-	-	-	1/8"	1/8"	7/16"	13/16"	1 1/4"	1 7/16"	1 7/16"	1 7/16
#14	-	-	-	-	-	-	—	-	-	-	-	5/16"	5/16"	5/16"
#15	-	-	-	-	-	-	-	-	-	-	-	5/16"	5/16"	5/16"
#16	-	-	-	-	-	-	-	-	-	-	-	1/16"	1/16"	1/16"
#17	-	-	-	-	-	-	-	-	-	-	-	1/16"	1/16"	1/16"
#18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
#19	-	-	-	-	-	-	-	-	-	-	-	1/16	1/16"	1/16
#20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
#21	-	-	-	-	-	-	-	-	-	-	-	-	-	-
#22	-	-	-	-	-	-	-	-	-	-	-	-	-	-

PILE LOCATIONS



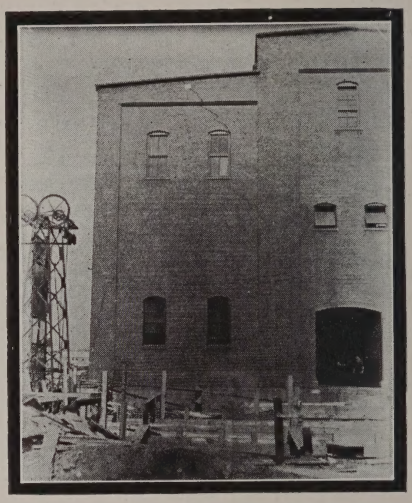
Picture No. 7 shows the walls stripped of the forms ready for the bricklayers to begin their work, and picture No. 8 shows the bricklayers removing the windows and getting ready for the construction of this addition.

This new structure involved the removing of six windows and frames

switchboard room on the southerly end. Views of the completed building will be shown at a later date, as also some of the interior work in this location.

Picture No. 9 is one that gives very graphically what occurred in the northwest corner of the old boiler room, spoken of in our other issue,

where this wall settled three-eighths of an inch. I have been informed by the steel men now at work, removing some of the old structures inside of the old boiler room, making ready for our new boilers and other steel work to be placed therein, that on removing a few of the beams that tied in to this wall on the water front, they were sprung about three-quarters of an inch, which shows that we did not undertake the replacing of supports under the above mentioned wall any too soon. The methods used in helping to carry the wall during the time that we made these piers, and other changes under this old wall have undoubtedly proved to us that these precautions were well worth their added cost.



No. 9, showing crack in old boiler room wall

BOSTON WORK-HORSE RELIEF ASSOCIATION

Malden & Melrose Gas Co., June 21, 1915.
139 Pleasant street,
Malden, Mass.

Gentlemen:—At the recent parade there were 1,340 entries and more than 2,000 horses. The rapidity with which all these entries were arranged in their proper places, on a space covering four miles of streets, excited much comment and was largely due to the efficient work of the driver-aids, of whom your employe, Joseph Reardon, was one.

We take pleasure in making this acknowledgment of his services, and request you to convey our thanks to him.

Yours very truly,
LEWIS A. ANNISTEAD,
Secretary.

KILOWATT HOURS VS. LIGHT DELIVERED

By Holton H. Scott, President National Electric Light Association, in the Lighting Journal

Contributed by H. D. Larrabee

THE rapid development in the efficiencies of the incandescent electric lamp is having a very marked effect upon the Central Station business, also upon the business of gas companies. It is affecting the business policy of the management of gas and electric companies and may, unless there is some additional compensation made to the companies, tend to retard extensions to the smaller consumers.

The public does not realize that the cost of electric illumination, that is, the cost per candle-hour, is now only 15 per cent of what it was a few years ago. Some of this enormous decrease is due to the decrease in rates charged for current; but the greater part of it is due to the improvements in the electric incandescent lamps.

Before these improvements came into general use there were many unprofitable consumers carried by every Central Station Company and the lamp improvements have added largely to the number.

During the past nine months the expenditures of money for all purposes have been analyzed and scrutinized as never before. These analyses have shown in at least some cities that it is not as desirable as formerly to make extensions to the small lighting consumers. The greatest effort to add new business has been along lines other than the addition of small lighting consumers and this policy has resulted in practically all Central Station Companies continuing to show substantial gains in both gross and net earnings.

Many gas companies have ceased to spend much money in their efforts to increase the lighting business because they have found that the investment is liable to show no returns after a short time on account of the competition of the high efficiency electric incandescent lamps. The gas companies are compelled to live up to certain gas candle-power standards that handicap them in reducing their cost of production, thereby preventing them from reducing their charges for service to a point where they may feel justified in making large investments for gas lighting business.

There will not be the proper incentive to obtain all the business for either gas or electric companies until it is made possible for them to receive at least a proportion of the benefits of the improvements in the efficiencies of appliances.

It seems to me that the chief function of the National Electric Light Association in the next few years will be to first teach its own members that the Central Station is not selling kilowatt hours, but is selling a service and the public will in turn have to learn the same thing before all concerned will receive the greatest benefits.

TENNEY SERVICE

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EDITORS

Palmer York, Asst. to the Pres. Charles H. Tenney & Co.
Levin J. Chase, Manager Concord Elec. Co.
John West, New Business Mgr. Charles H. Tenney & Co.

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A New Era

THE time for doubt and pessimism has past. We have slowly but surely adjusted ourselves to the extraordinary conditions in the old world and it has at last dawned upon our merchants and manufacturers that America's opportunity is at hand.

We have not sought the opportunity; it has been forced upon us by the inexorable logic of events. It is written in letters of blood and fire that we must feed and clothe not only one hundred million Americans but the myriad peoples of war-cursed and shivering Europe.

It is our manifest destiny. The close of the Great War will find the United States the only producing nation in the world.

Let us consider some of the facts. The population of the world is sixteen hundred million. The population of the United States is one hundred million.

We have one-sixteenth of the population of the world and one-third of the wealth of the world. It is quite likely that in two years we will have one-half the wealth of the world as it will flow in our direction for the next ten years, at least.

We will have to feed Europe. We will have to rebuild the homes, the bridges, the railroads. We will have to rehabilitate the factories and finance many industrial institutions, in fact Europe will demand at our price nearly everything that we grow or manufacture.

Times and conditions are auspicious. This country with its vast wealth and resources should be from now on the financial, industrial and commercial center of the world.

Unless all signs fail we are on the eve of the greatest business boom that this country has ever seen. Now is the time to build factories, train salesmen, borrow money and plough wide and deep.

For the first time in the history of this country the markets of

the world are ours for the asking. For the first time in our history we are forced to give preference to American-made goods, a development that is destined, if wisely nurtured, to be a tremendous factor in our commercial prosperity. The greatest trade opportunity which has ever presented itself to manufacturers of the United States lies, at the present moment, within its own boundaries.

There is no end of business at home and abroad for those who can see it. A new era of unexampled commercial prosperity is close at hand. It cannot be stopped unless the purblind politicians of the country dig trenches and fight it off.

ADVERTISING

MANY people think that advertising is a scientific method to coax cash out of the public for something worth less than it costs.

Those who think that advertising is a system of mendacity are often right, but they fail to take into account that there are two kinds of advertising, one that is intentionally deceptive and the other that tells the plain truth in an attractive way. The latter is planned to establish good-will and create a sentiment in favor of the article, concern or person doing the advertising.

A great many people respond to false advertising because it is their nature to be fooled. To this particular class of people an honest advertisement has no attractions because they are trying to get something for little or nothing.

But the person or concern that puts out false or misleading advertising meets with disaster sooner or later, as in these days the public has a keen nose for trickery. As a rule false advertising never pays unless it is the intention to make a quick clean-up and a prompt getaway.

It is the intention of the modern school of advertising to build up an honorable name and, by legitimate means, attract attention.

Most large firms put their advertising into the hands of experts who are able to make it attractive and original.

But the real merit of an advertisement is its honesty. The public should be told forcefully, entertainingly, instructively and truthfully what you have to sell.

In other words good advertising is honesty and sincerity of purpose and a plain statement of facts.

MODERN WARFARE

THERE was a time when war consisted in the sacrifice of human life in order to win victories. Generally speaking the results of a victory were supposed to be worth the cost. Under the old system the onlookers were able to follow the battles and measure the results with a fair degree of accuracy.

But in the frightful and destructive war now being waged in Europe all the old standards of warfare have disappeared and the normal mind is unable to mark its progress.

Under modern conditions a victory has lost its ancient significance and warfare has become the science of steady, unrelenting and indefinite carnage.

Of course the real purpose of armed conflict is still the same, but war has been so efficiently organized that its glamour has disappeared and through the medium of modern efficiency it stands revealed in all its actual futility and horror.

In addition to its toil of existing

life, war exacts a terrible tribute from the life of the future. Millions of men and women will have to labor all their lives with no result but the repair of wasted material. Millions of human beings will be deprived of the comforts, the health and the wholesome leisure that an enlightened civilization would naturally give them, because this generation, forgetful of the past and unmindful of the future, abandoned itself to the wholesale shedding of human blood.

It is now apparent that modern warfare has no strategy except that of absolute annihilation and destruction. All the glory of war has been banished by the chemist, the mechanic and the inventor. If in the past victories have seemed glorious, it was because military science had not advanced sufficiently to reveal the hideous logic of complete efficiency in war.

HOME

"GOD bless our home" is an ancient and threadbare motto, but to the normal man it possesses a deep and sacred meaning.

God bless our hotel, or flat, or boarding house is a joke. A furnished room is never a home in the real sense of the word. At the best it is a temporary shelter which men seek through ignorance or because there is no alternative.

A fixed abiding place is one of the greatest needs of the human being. If man is to make the most of his material, mental and moral nature, he must find a permanent habitation and call it "home."

"God gave all men all earth to love
But since our hearts are small,
Ordained that one small spot should prove
Beloved over all."

ELECTRICAL APPLICATIONS

By Thomas D. Bond, Power Agent,
Haverhill Electric Company

ELECTRICITY, that invisible agent known only by its effects and manifestations, is making itself indispensable in innumerable industries. One can journey almost nowhere without finding electricity in some of its forms being made use of as a source of revenue.

Since the beginning of time man has been devising various means by which he was enabled to reduce manual labor. The biggest stride in this direction was the discovery of that very flexible and positive motive power, electricity. Not only is this agent used as a motive power, but as light and heat, for medical purposes, etc.; in fact, one could mention very few operations, of one kind or another, that have not been accomplished by the use of this ghostly quantity.

This fact is made very evident by taking a flying visit to various places in one's own city. In our own case here in Haverhill, this has been done and we find it has been quite an education.

The following trip may be of interest:

We will take our electric runabout and start immediately for Bradford. On Kensington avenue we will stop and see W. R. Merryman. Mr. Merryman has a very interesting wholesale picture postal establishment.

Here we may see a machine printing photographic postals at the rate of 1,500 an hour. This is run by a ½ H.P. motor and the printing is done by electric lights. A 750-watt, Type "C" furnishes light for enlargements.

Next stop, Fernwood avenue. Just a stop to see Dan Fox's electric incubator and the chicks. Runs it in his dining room—no dirt or worry; lost only one chick out of three hatches.

Over on Kingsbury avenue J. F. Howard makes salad dressing; sample it—it's very good. He uses a 5 H.P. motor for stirring the salad, putting on labels and the caps, thus saving a great deal of hand labor.

The Silver Leaf Baking Company uses 21 H.P. in the making of their bread. The bread mixer, weighing and cutting machine, and other appliances necessary to wholesale bread making are very interesting and call forth many exclamations of astonishment from the uninitiated.

We will now take a little trip down Riverside way, on East Broadway, and stop a moment to see the filtration plant of Mr. Charles W. Eaton. Mr. Eaton does not have city service so had to put in one of his own. Electric service made this possible; a 2 H.P. motor supplies water for the house and farm.

The Millvale Cider Mill of Mr. Thomas H. West is the next point of interest. Here we find a 5 H.P. motor grinding the apples and pressing out the cider. Thanks for the cider —it is very refreshing.

Now up town:

At Riker-Jaynes' electricity is used for making ice cream and on the cash-carrying system.

At the stable of F. H. Ballard we find an electrically operated clipping machine used for clipping the horses in the summer.

On Court street the City of Haverhill uses current to operate the police call system.

The Atwood Monumental Works, on Main stret, use a 5 H.P. motor to operate their drilling and chipping machine.

Up on Auburn street the Wason-MacDonald Company use current for stirring the milk in their pasteurizer and also for the cream separator.

The Merrimack Ice Co., Lawrence street, use a 3 H.P. motor on an ice crusher. This enables them to carry the crushed ice all ready for their customers without the bother of stoping long at each place to cut it by the hand method.

At Frye's corner the Nichols Ice Company use a 20 H.P. motor to operate the hoisting apparatus, which carries the cakes to the ice houses.

The Granite State Spring Water Company have 20 H.P. installed. They have bottle fillers, label affixers and cappers—all power operated.

We will now go back to Fleet street and see Joseph J. McManus, the horse chiropodist. Mr. McManus has an up-to-date place, electric forge, blowers, electric horse clippers, etc. He also runs a 2 H.P. motor in a small machine shop.

At R. A. Splain's, Fleet street, we find an automatic beer pump in operation. This company is also seriously considering installing electric refrigeration.

Nelson Brothers and the Mohican Company are both using electric refrigeration in their meat departments.

At Dr. Charles S. Benson's Merrimack street, we find a very interesting installation. The doctor has in operation a mammoth X-ray machine, which has been the means of alleviating the suffering of many patients.

L. Kimball & Son, jewellers, Merrimack street, use a small motor for brightening and polishing silverware.

Let us stop in the Academy of Music a moment and look at the organ. Most people believe that the coral

cello is operated by air; this is untrue, as every note is caused by an electric impulse. The organist presses the key, making an electric contact which in turn causes the vibration of the strings. Three horse power is required on this installation.

M. J. Fowler, optician, Merrimack street, uses a small motor to grind his own lenses, thus insuring to the public the right article.

P. E. Elliott, plumbers, on West street, use 2 H.P. for pipe cutting and threading.

G. P. Nichols, also on this street, has an interesting place,—wholesale ice cream. Freezers, ice crushers, can washers, etc., are operated by electricity.

A flat tire: F. W. Quimby, Tire Shop, very handy at 30 West street; free air by electric pump.

Uncle Sam uses a 2-3 H.P. on a stamp-cancelling machine in the Post Office.

The Board of Health, 85 Emerson street, use 3 ⅛ H.P. motor on one shaker and two centrifugal extractors and electric heat in an incubator.

At the Sonoma and Dr. Watson's stables, we find 2 H.P. motor connected to grain crushers; this saves a great deal on grain and time.

Let's get some peanuts at Domenico Gaiero & Company, 41 Locust street. They use an electric peanut roaster.

St. Joseph Church, Grand street, has a ½ H.P. motor to pump the organ.

Oh! There is a fire. Say, that's an awful sounding whistle. Even so. it is operated by a 5 H.P. motor.

The Moulton Cold Storage Company, 132 Essex street, has 112 H.P. installed on an electric refrigerating system—no ice being used. In some compartments freezing temperature is maintained, thus insuring a perfect product to the trade.

The Haverhill Milling Company, 191 Essex street, use 40 H.P. on grain crushers, conveyers, etc.

At 200 Essex street, W. E. Shultz uses electricity for electro-plating.

H. I. Beauvais, 12 Lafayette square, wholesale liquor dealer, a bottle-filler is operated by electric power.

The grocers, Proulx & Parent, 135 Lafayette square, operate a coffee grinder and meat chopper.

On Hale street we find Alexander Roberts, who uses an electrically operated baling machine, saving time and expense in preparing his product for shipment.

J. M. Buckley, 52 Primrose street, has a ½ H.P. motor in the hosiery making industry.

On the farm of John M. Dodge, Broadway, we make our last stop and find him using a milking machine of the latest type. This machine is saving Mr. Dodge considerable expense in time and labor.

Thus we have covered the city and have seen a number of the applications of electricity. There are many others, both in the home and the factory.

SECOND ANNUAL FIELD DAY OF THE MALDEN & MELROSE GAS LIGHT CO. AND THE MALDEN ELECTRIC COMPANY, JUNE 23, 1915

By Cyrus Barnes, Appliance Manager

THE employes and their wives boarded four special trolley cars and started for the grove at 8.30 a.m. We engaged the Maplewood Band for the day and strains of music could be heard along the way to the grove.

At the destination the party was met by the committee. A parade was formed and at the end of the march around the field everyone lined up and had their pictures taken. From the picture the three people taking the best picture were chosen. The judges tell me it was some proposition to decide.

After the pictures until 1.30 everything was run on schedule time. Everyone was interested in the various events and very enthusiastic, the gas fellows cheering on one side and the electric on the other.

At the close of the events all assembled in the field and Mr. A. E. Bliss, general superintendent, presented the prizes to the winners in a very fitting manner.

Too much cannot be said of the generous banquet in which about three hundred and fifty people took part. The dinner was aranged under a tent large enough to accommodate all the people and it was possible for everyone to be served at one time, and it did seem as if the horn of plenty overflowed many times.

The ball game between the gas and electric companies was of major character and from start to finish was full of sensational catches and breathless moments. It might be well to mention here the midget battery for the electric company who more than covered themselves with glory, bringing success to their teams. This game was played ten innings and the electric company won, 6-4. The umpires handled the game like veterans, keeping everyone happy with their genial manner and just decisions.

The bench managers, however they came by that title, were to be found on the side lines and we feel sure that Hughie Jennings could have gained some new stunts from them.

The enthusiastic followers of dancing were given an exhibition of both modern and old time dancing.

With the help of the weather, beautiful grove, music and the activity on the part of the committee to keep things moving and on schedule time the result was one of the most enjoyable field days we have ever had.

Following is the program and the results:

Winners of the events in the second annual outing of the Malden & Melrose Gas Light Company and the Malden Electric Co., June 23rd, 1915:

1. Beauty Contest:

1st. Miss Gertrude Hewins	Gas 5
2nd. Mrs. Elizabeth Cronin	Gas 3
3rd. Miss Louise Kinsman	Gas 1
	Gas 9

2. 100-Yard Dash:

1st. Mr. John Butler	Gas 5
2nd. Mr. Paul Minor	Elec. 3
3rd. Mr. Arthur Robinson	Gas 1
	Gas 5, Electric 3

3. Sack Race.

1st. Paul H. Minor	Elec. 5
2nd. P. Sullivan	Gas 3
3rd. C. Buckley	Gas 1

Gas 4, Electric 5

4. Tug of War:

Won by electric team, George Heustis, Jerome Carroll, Jack Reed, Thomas McCarthy, Pat Farrar. Electric 10

5. 50-Yard Dash—Ladies:

1st. Miss Buttrick	Gas 5
2nd. Miss Irene Handy	Gas 3
3rd. Miss Martin	Elec. 1

Gas 8, Electric 1

6. Fat Men's Race:

1st. Edward A. Harris	Elec. 5
2nd. Harry Thornton	Gas 3
3rd. C. N. Alexander	Gas 1

Gas 4, Electric 5

7. Shot Put:

1st. E. A. Harris	Elec. 5
2nd. John Butler	Gas 3
3rd. George Barnes	Gas 1

Gas 4, Electric 5

8. Relay Race:

Won by the gas company, Arthur Robinson, John Butler, John Glennon, John Murphy, A. DeMarco. Gas 10

9. Three-Legged Race:

1st. Charles Maher and John Butler	Gas 5
2nd. E. Streck and A. DeMarco	Gas 3
3rd. P. Minor and F. Miller	Elec. 1

Gas 8, Electric 1

10. Relay Race—Ladies:

Won by gas company, Misses R. Richmond, E. Buttrick, D. Foote, Irene Handy, H. Sullivan. Gas 10

11. Boat Race—Ladies and Gentlemen:

1st. Mrs. E. A. Harris, Mr. Cyrus Barnes	Elec. 5
2nd. Mrs. Ayres, P. Minor	Elec. 3

Electric 8

12. Canoe Race—Men:

1st. George Barnes	Gas 5
2nd. Clarence Morton	Elec. 3
3rd. P. Minor	Elec. 1

Gas 5, Electric 4

13. Boat Race—Men:

1st. J. Cronin	Elec. 5
2nd. Irving Campbell	Elec. 3
3rd. H. Rowell	Elec. 1

Electric 9

14. Ladies' Ball Throwing Contest:

1st. Miss Chester	Gas 5
2nd. Miss C. Mullaney	Gas 3
3rd. Mrs. Charles Hawkes	Elec. 1

Gas 8, Electric 1

15. Ball Game:

Won by electric company
Gas 4, Electric 6

Runs by

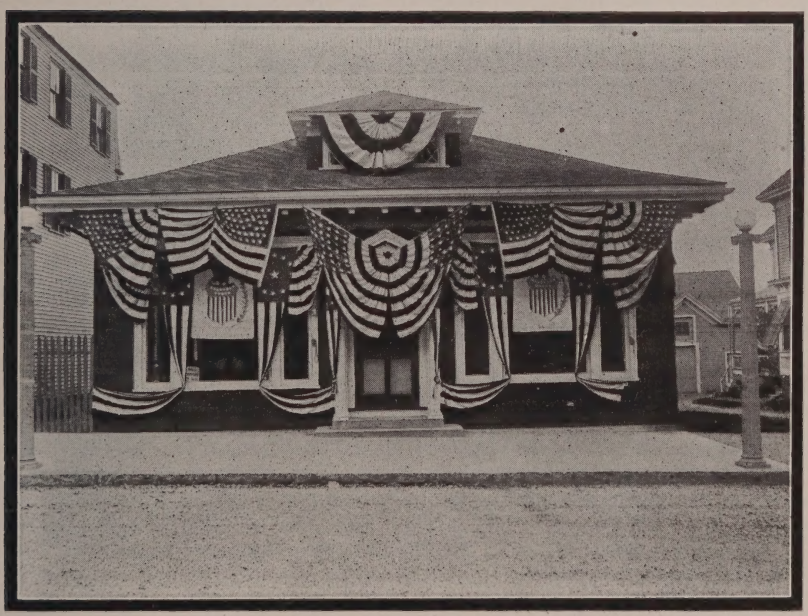
Mr. C. D. Perkins	Elec. 3
Mr. John Butler	Gas. 2
Mr. C. Mayo	Elec. 2
Mr. Edward Streck	Gas 1
Mr. A. E. Walters	Gas 1
Mr. E. A. Harris	Elec. 1

16. Prize Dancing:

Mrs. James Murphy, Mr. Mullaney Gas 5

Total points: Gas 85, electric 58.

Suburban Gas & Electric Club in Flag Day Parade, June 14, 1915.
Commanded by Harry Frank



Suburban Gas & Electric Company's office decorated for Flag Day

OUR WORK IS OUR BRAIN'S GYMNASIUM

By H. K. Brown,
Malden Electric Company

For Managers—
For Superintendents—
For Foremen—

For office clerks, inspectors, linemen, meter men, and all who are hired to work for others, this article is intended. It is a mistake to skimp your work because you are working for someone else and fear you are doing too much.

Bear in mind that our own effort is the only thing by which we can improve and better our conditions. All of us possess certain mental and muscular faculties and their development or decay depends on ourselves. A shirker not only robs his employer, but he robs himself first of all. Perhaps the employer pays you too little, you say, but that is no reason that you should hurt your moral character through dishonesty. There is no kind of work that can fail to make you a better and more successful man if you only work at it honestly and loyally.

When you sweep, sweep clean and thoroughly. Be punctual each day with your duties; be systematic as well; train your muscle through your work; make an effort to create new ideas, and thus become a benefactor if only in a small scale. Do not be content with merely working as the other fellow does. "Am I doing better than the other fellow?" is a dangerous question.

Do not by all means overwork yourself or work regardless of your own physical welfare. Do as much as you can in the present without drawing on your future reserves. Do not impair your vitality as that vitality is your capital. Achieve honesty and never form a habit of neglecting your work or lying. You cannot deceive nature or yourself even if you do your boss. You can form good habits only through regular work. Keep yourself wound up. Hard effort may fail to achieve greatness, but honest work by you will at least make it impossible for you to be a failure.

Train your brain, nerves and muscles to regular, steady, conscientious effort and you will soon find yourself more successful and self-respecting.

PRESS COMMENT

Recent Clippings From Local Newspapers

FITCHBURG GAS AND ELECTRIC LIGHT CO. ANNOUNCES REDUCTION

(From the Fitchburg Daily News, June 21, 1915.)

Gas will be reduced July 1, just as was promised by the Fitchburg Gas and Electric Light Company last winter. The new rate of $1 per thousand cubic feet, which means Dollar Gas, goes into effect at that time, making the third reduction of the commodity since the Tenney interests took over the plant in 1909.

Dollar gas also means the changing

over of some 5400 prepayment meters in this city, but with the employes of the company, working steadily to change the gears of the meters to correspond to the new net rate, it is expected that it all will be in readiness by the time set by the company.

Official announcement of the change of gas rates is being made today by the company in large advertisements in the local newspapers, but Manager Clifton R. Hayes of the Fitchburg Gas and Electric Co., today outlined the policy of the company and the way the reduction has been brought about, to a reporter for the Daily News.

"From 1909, the year in which the Tenney corporation took over the plant of the Fitchburg Gas Company, three reductions in the price of gas have been made," said Mr. Hayes.

Continuing, he said: "It first was reduced from $1.45 gross and $1.25 net to $1.25 gross and $1.15 net, and since that time the problem has been to rehabilitate the plant and distribution system. The old horizontal retorts have been discarded and the Glover-West vertical system of retorts installed. The Fitchburg plant was the first in this country to install the Glover-West system and engineers from both the United States and Canada have closely watched the results of our experiment and based upon the results at our plant and abroad, the system has been installed in numerous places, notably Pawtucket, R. I., Springfield, Mass., and Portland, Me. These cities have plants that are probably four times as large as the one in Fitchburg. Many other cities are planning or are installing the Glover-West system.

"Very much larger mains in various sections of the city were found to be necessary to handle the moderately increasing consumption and it has been found necessary to correct many conditions that were found to be unsatisfactory.

"Despite this increase in production cost a reduction from $1.25 gross to $1.20 gross was made and from $1.15 to $1.10 net and now we are to reduce the price of gas to $1 net per thousand cubic feet.

"This reduction has been made in the face of rising cost of raw materials and increase in the cost of labor. This, together with other items, one in particular—taxes, put the matter of the intended reduction more in the class of achievements than otherwise.

"The item of taxes has been a most important increase as can be readily seen from the figures of 1908 when the plant was assessed for $560,500 which is compared to the assessment this year of slightly less than $1,400,000. The increase in taxes paid to the City of Fitchburg has been about two hundred per cent."

After July 1st, all bills for gas consumed will be rendered at the rate of $1 per thousand feet net.

At the present time employes of the gas company are engaged in making the necessary changes in the gears of the prepayment meters—there are approximately 5,400. Of these 25c type of meters to be adjusted.

This work will all be completed by July 1st and then the new rate will prevail in all cases.

There is to be no reduction in the price of electricity.

(From the Salem Evening News, June 11, 1915.)

I note that the market place is now lighted by electricity. By this I mean that the stands of the market merchants now have electric lights instead of the gasoline and kerosene lights that have been noticed from time immemorial. It all comes about through the granting of permission by Director Gifford to the Electric Lighting Company, to install a meter

and apparatus in the market house, so that the juice can be supplied to the hawkers. Now by simply connecting up a line with the market house the merchants in the square can turn on their individual lights as they want them. The cost is only about a third of what the old style lights cost and the result is eminently more satisfactory in every way, the light being better and the whole thing far safer.

ELECTRIC APPLIANCES

(From the Salem Evening News, June 11, 1915.)

Old-time housekeepers would be greatly surprised if they went into the kitchen of one of Salem's up-to-date residences. Instead of a large black stove for cooking, they would find either a handsome gas range or an electric range—the latter the latest thought in cooking ideas. Plenty of hot water is now assured by employing some kind of gas heater entirely separate from the old-fashioned water front of the kitchen range. In the olden days, hot water was a luxury in the summer, because the kitchen fire was allowed to die in hot weather. Now there is always plenty of warm water for all purposes. When it comes to washing day most of the drudgery of the past is overcome by using a washing machine with power wringer attached. Ironing is done by electric or gas irons, so there is no delay waiting for irons to "heat." Sweeping is by vacuum cleaner, and on hot days the kitchen can be cooled by electric fans.

If a Welsh rarebit is desired, instead of lighting a rather smelly chafing dish, an electric plug is inserted in a socket, and the rarebit is cooked by electricty without an unpleasant odor or bother of hunting for alcohol. Coffee can also be made on the dining room table, and crisp toast fixed up, eggs may be boiled and a number of tempting dishes cooked with the new electric appliances. The newest idea is a miniature refrigerating plant that does away with the ice man.

There are also a dozen minor conveniences, such as cooking cabinets, etc., etc. The work of the housekeeping department of a residence is now much easier than in former times, and the employment of machinery insures more satisfactory service.

TENNEYGRAMS

CONCORD ELECTRIC CO.

John M. Ahern, Correspondent

W. H. Phillips, assistant treasurer of the Consolidated Lighting Company of Montpelier, dropped in on us recently on his way from Boston to Montpelier over the road.

In Concord's recent sesqui-centennial celebration some of the employes of the company were much in evidence. Office Manager Brown headed the division for comical cars in the automobile parade. Miss McGowan typified a lady in waiting to Queen Isabella on one of the floats and on another float, Superintendent McLeod glared from a helmet disguised as a Crusader. The rest of

us lined up and "hollered our heads off"' as these notables passed by.

In the anniversary athletic events our bill deliverer, John Murray, figured prominently, winning two handsome cups in the 100 yard and 220 yard dashes. His time for the 100 yard event, 10 4-5 seconds, was considered remarkable for a race held on a tar pavement. John enters Dartmouth in the fall.

Edward Rushlow enjoyed a week's brook trouting in the tributaries of Stinson Lake, this state, early in June. He reports an abundance of trout and an overabundance of black flies and midgets.

The Girls' Friendly Club of Concord has taken over the West Gardens for the snmmer with the intention of enhancing the value of this beautiful spot as a gathering and resting place for the public. Concerts will be held frequently and refreshments served every afternoon and evening until ten o'clock. The material interest of this lies in the fact that the West Gardens are studded with myriads of electric lights which, under these conditions will—speaking of enhancing—increase our revenue somewhat.

On June 4th we erected for the A. P. Fitch Company a very attractive double faced flashing sign composed of one 14 foot vertical panel reading "DRUGS" and a 42-inch horizontal panel at the bottom reading "FITCH," upon which rests a soda glass which appears to be filled from a faucet at the top of the sign. There are installed in this sign 116 5 watt, 55 volt Mazda lamps and 134 10 watt 110 volt Mazda lamps. We also have on hand a transparent sign 9'x16" to be erected on the Masonic Building to be equipped with 10 60 watt Mazda lamps.

I. E. Gray has purchased an electric sign which will be installed when his new garage, which is now under construction, has been completed.

We recently installed for H. G. Emmons & Co., 24 Frinck semi-indirect lighting units in his dry goods store, equipping them with 500 watt Type C Lamps, resulting in a marked improvement in the illumination and giving supreme satisfaction, after four years of effort on the part of this company to secure a lighting equipment which would meet the exact requirements of Mr Emmons. We also recently installed three of the same type of fixture in the new specialty store for A. H. Knowlton & Co., which more than meets requirements in the way of illumination as well as the cost of operation.

We installed in the upper dining room of G. Nardini & Son a 21-inch Westinghouse Exhauster for ventilating purposes, moving 2770 cubic feet of air per minute, making a total of five now operating in this establishment. We have on hand to be installed, for this concern, one of the largest hotel type electric toasters obtainable, making a total of three in operation for this customer.

Chaos may have reigned abroad, but that harmony prevailed in Concord on June 6, 7 and 8 is well proven in the following item from the Concord Patriot:

"Rep. Levin J. Chase, chairman of the committee on decoration, outdid himself in the decoratve scheme he worked out for Main street and the State House grounds. He waited until most of the work had been done along the street, then mapped out his plan with an eye to making a harmonious whole. The visitors coming in on the trains gasped with

pleasant surprise when they got a view of Main street."

The State House grounds, which constitute the front yard of our office, are undergoing a thorough overhauling this summer It is pleasing to note in this connection that these repairs will remove from the public view the last vestige of that illuminant which is not supplied by our company. In its stead the original plans called for electric lamps on ornamental posts at the main entrance of the capitol building, but the Governor and Council were so impressed by the temporary lighting of the grounds during the 150th anniversary celebration that it has now been decided to permanently install several more lamps about the grounds in connection with the municipal street lighting system, so that the yard may be generally illuminated at all times.

CONSOLIDATED LIGHTING CO.

This district has been enjoying a strike for about 12 weeks which tied up the entire granite industry and incidentally tied this company up. The new working agreements have been signed and things are getting back on a pretty fair basis once more. These agreements were signed on May 15th, and during the month of May, on the strength of this event, we gained 75½ H.P. In addition to this we have ready for connection and in part operation installations which will be completed during the month of June and which will give us a gain of 507 H.P. for that month, showing the recuperative powers of the Vermont community.

The City of Montpelier at a special meeting recently held voted to put in a new bridge on State street which is known locally as the Rialto bridge—this will be a steel girder bridge encased in concrete and will cost about $20,000, of which expense the Traction Company is supposed to be assessed one-half.

Near the location in Montpelier known as the Rialto bridge there is fast nearing completion a very substantial business block replacing those destroyed in the fire which we had in February, 1914, and which entailed a loss of about $200,000.

On June 24th the new hotel at Barre, located in City square, will be officially opened and this will be quite an event because Barre has never had a first-class hotel. The new hotel is a handsome brick structure, containing some 65 rooms and being equipped with elevator and all other things which go to make up a complete outfit for a modern small hotel. The cost is understood to be about $100,000 and there is no doubt but what this will be one of the best hotels in the state.

EXETER & HAMPTON ELECTRIC COMPANY

Miss Bessie M. Whyte, Correspondent

In connection with the recent sad accident, whereby Lineman Gilbert French nearly lost his life, we would like to mention the heroic act of George Carleton, a co-worker of Mr. French, who after disconnecting his body from the live wires, held the limp form in midair fully five minutes while waiting for help, but finally lost his hold in trying to put out the fire that was burning the clothing on Mr. French's body. It was a trying ordeal and one that Carleton will never forget. Being cool headed in emergencies, loyal to

his fellow workers and the company, is in keeping with Mr. Carleton's makeup.

In connection with the above will state that although Mr. French's accident at first seemed fatal, reports are now that he is slowly recovering.

Manufacturing in Exeter seems to be doomed. The factory of C. A. Cossaboom, a large shoe mnufacturer, who recently moved his business here from Amesbury, was burned to the ground June 9, also a large box manufacturing plant was destroyed. Despite the above losses we are building a large canning factory, but are wondering what will happen to this. Owing to the above fire this company loses, from revenue, approximately $150 per month.

After three years of persuasive arguments and continually keeping at it, our superintendent, Mr. Edgerly, has finally convinced the officials to his way of thinking, and he now takes pride in driving an auto truck over the eight towns he has to cover. He now promises us great efficiency in construction and repair work.

Hampton Beach, the noted summer resort, which is located in our territory, is growing wonderfully, regardless of the cold season last year and thus far this year. The beach is becoming the favorite summer home of people in northern Massachusetts and southern New Hampshire and cottages are springing up all the along the Hampton coast. It is also the main stopping point for lunch, for auto travel, between Massachusetts and Maine. We predict a great future from this resort.

EXECUTIVE OFFICE

Harry Barwise, Correspondent

Mr. and Mrs. Palmer York are receiving congratulations on the birth of Palmer York, Jr., which took place Monday, June 21st.

Mr. and Mrs. John West and Mrs. D. P. West have returned from a month's trip to San Francisco and the Panama Pacific Exposition. The party left Boston May 25th on the "Red Special" under the auspices of the National Electric Light Association, and returned June 22nd. While in San Francisco Mr. West attended the convention of the National Electric Light Association.

The tour included many features, and many points of interest were visited en route, among which were the Mississippi River Power Company's Plant at Keokuk, Iowa; Grand Canyon, Arizona; San Diego, Pasadena, Los Angeles, Yosemite Valley, Shasta Springs, California; Portland, Oregon; Seattle, Washington; Victoria and Vancouver, B. C.; Lake Louise, Banff and the Canadian Rockies.

FITCHBURG GAS & ELECTRIC LIGHT COMPANY

Frank S. Clifford, Correspondent

Progress was the subject discussed at a meeting of the Fitchburg Gas & Electric Club held Thursday, May 27th. After supper had been served, Mr. Hayes, our president, announced that he was going to call upon some of the members to tell of the progress which had been made in their departments during the year passed. From the remarks of the men who were called upon, it was evident that

real progress was being made by the company as a whole. Mr. Hayes then outlined some of the accomplishments of the past few years and concluded his remarks with the statement that although we have shown marked progress, we expected to show even greater progress in the years to come.

The second of the series of three ball games between the "Cuties" (the office) and the "Terrors" (the works) was recently played, and the Terrors won 29 to 10. The series is now even, as the Cuties won the first game. The second game was marked by the absence of errors, and from the score it may be seen that both twirlers were invincible. The ladies of the office were on hand to cheer the Cuties, and the members of the office team were in hopes that the cheering of the ladies for their team might have a very desirable effect on the umpire, but unfortunately, the umpire proved to be a woman hater, and favored the works rather than the office. The deciding game is to be played very soon, and both sides are confident of victory.

Miss Sylvia L. Downe, electric ledger clerk for this company for thirteen years, was married to Charles E. Bosworth on June 9th. The employes of the company presented Miss Downe with a gift of flat silver.

After such a long active career it is evidently a difficult matter to settle down to a quiet honeymoon, for we hear that Mrs. Bosworth is now engaged in the stupendous task of removing the fish from Sebago Lake.

The spring campaigns on stoves and water heaters have been quite successful. On June 12th, our total sales of stoves and water heaters this year equalled the total sales of 1914. In April, we offered a 10% reduction in the price of gas ranges, and sold 288, this being the largest number of stoves ever sold in Fitchburg in one month. During May, we conducted the same campaign on water heaters, as did Springfield, and sold 203. From June 1st to 18th inclusive we have sold 87 stoves, and this is a new record for us for this period.

On July 1st, the price of gas is to be reduced from $1.10 to $1.00 net. We are announcing the reduction in a half page ad in the five local papers. When Charles H. Tenney & Co. assumed the management of this company in January, 1909, gas was $1.45 gross.

HAVERHILL ELECTRIC CO.

Thomas D. Bond, Correspondent

How doth the busy jitney bus,
With people make a hit,
By jitting all about the town
At five centimes per jit.

Newton Newkirk.

Plastering is all finished on our new office building; we expect to get in by the 1st of August.

The new underground work has been completed and all wires and poles have been removed on Essex, Wingate, Granite, Duncan, Locke, Winter and Main streets.

The new 8-story building of the Essex Associates has been completed and tenants are moving in. The

building is equipped with the latest in fire prevention in that the sprinkler and heating systems are one and the same set of pipes.

The building is equipped with three elevators—two freight and one passenger. A transformer room in the basements contains all of the electrical equipment, which comprises three 75 K.V.A., 2300-550 volt transformers and one 37.5 K.V.A. 2300-110 volt transformer together with the necessary switchboard, circuit breakers, etc.

The wiring was done by our own boys and is an excellent piece of workmanship.

The lighting of this room is on a separate circuit, so that there will always be light in case of emergency.

The following piece from the Haverhill Gazette, June 9th, 1915, is of interest:

"Members of the Haverhill Electric Club and guests witnessed a demonstration of the workings of the lungmotor which has been added to the life-saving equipment of the Haverhill Electric Co., following a lobster supper served in the rooms of the club at the Water street plant.

"After the demonstration the lungmotor was taken to the City Hospital, where it was used with beneficial results on Henry LaBranch of 54½ Central street, who drank wood alcohol early in the evening and was unconcious for several hours.

"The new apparatus was operated by employes of the Haverhill Electric Company under the direction of City Physician H. Murray Crittenden and Dr. Joseph Ruel, who were present at the demonstration. Both physicians declared that the treatment was very beneficial and instantaneous in its effect and that its use increased the man's chances of living.

"Among those present at the banquet, which consisted of clam chowder, delicious hot boiled lobsters, rolls, coffee and apple pie, served by John H. Bragdon, were Vice-President Howard T. Sands of Charles H. Tenney & Company, Mr. E. A. Bradley, treasurer; Mr. H. A. Gidney, auditor, and others from the associated Tenney interests; Messrs. Alderman C. M. Hoyt, Marshall John J. Mack, Captain Harry Hill and Chief John B. Gordon.

"Manager F. L. Ball of the local company, who is also president of the club, presided and welcomed the guests and told how the Tenney Company, finding that the lungmotor was being extensively adopted elsewhere, had added one to the equipment of the local company, which already has a pulmotor which has been used in 17 cases thus far. It was the last meeting of the club until fall.

"President Ball introduced Mr. Wignall, who explained the workings of the lungmotor in detail and pointed out its merits. The lungmotor may be operated with or without oxygen, which is generated by the dropping of a chemical tablet in a tank of water, which promptly liberates the oxygen for use in the machine.

"The lungmotor is available for use in asphyxia from gases and fumes, mining accidents, electric shocks, apparent drownings, smoke, strangulation, collapse after anaesthesia and asphyxia of new-born infants. One great point emphatically brought out by the lungmotor representative was the ease with which the entire apparatus may be sterilized."

We were all expecting Mr. A. B. Tenney to attend, but at the last moment he found that it was impossible for him to come; our loss.

On Friday, May 28, 1915, at 5.30 in the morning, George Ayer, C. E. Haseltine, E. D. S. Palmer and T. D. Bond left by auto for an extended fishing trip. Through Franconia to Berlin, N. H., and thence to Cold Spring Camps, Great Averill Lake, Vermont,—one day's fishing there and then a night jump through Dixville Notch to Wilson's Mills on Little Magalaway River, Me. One more day of great fishing, including one 4-pound brook trout, and then home through Crawford. Some trip; we all hope to go again.

The old Haverhill Electric Company sign that graced the front of our old office has been refinished and is now doing good service down at the plant.

The Salem (N. H.) Electric Company has signed a ten-year contract for primary current. This gives us a nice piece of business for a short extension.

The Haverhill Electric Company and the Exeter & Hampton Electric Company hold their combined outing at White's Island, Hampton Beach, June 26, 1915. The following committee is in charge: Mr. James E. Frank, chairman; Mr. George D. Baxter, Mr. Robert Glines, Mr. Thomas D. Bond. More about this in the next issue.

W. W. Byars of the line department has been having a vacation for two weeks.

A new Burroughs power adding machine has been added to our office equipment for use of the teller.

Mrs. Vaughn Moore, beter known to us as "Peggy" Wiggin, a former stenographer, paid us a very pleasant visit recently.

Our manager, F. L. Ball, left Wednesday night, June 16th, for a short fishing trip in Canada.

The E. M. Richard Shoe Company of Lynn are making preparations to move to Haverhill, where they will occupy two and one-half floors in the new Essex Associates Building. They will employ about 350 people. A welcome addition to our city and power load.

Dolly, our faithful old meter readers' horse, has been sent to her final home. Mr. Sweetser of Hollis, N. H., has kindly made arrangements to

Dolly

take care of her for the remainder of her life. "Dolly" has been with us ten years.

MALDEN ELECTRIC COMPANY

H. K. Brown, Correspondent

10,000 meter contest:
Total meters gained for May....154
Prize winners: F. A. Keniston, first; E. A. Harris, second; C. O. Hawkes, third.

Chief Engineer Trudo is planning to go South on July 1st to try and

discover the fountain of youth. We all hope Ed will regain his health speedily, and be back, on the job, well and strong, in the fall.

William Pulsifer, our musical office boy, has resigned on account of ill health. He is succeeded by "Oliver," his brother (not musical).

A. E. Whitmore is the proud father of a 9-pound boy. Young Whit will probably be breaking the speed limits in a few years.

Joseph Reardon, stable foreman, announces the following prize winners in the work horse parade, May 31st: Horse No. 6, second prize; horse No. 10, first prize; horse No. 11, second prize; horse No. 13, second prize. Stable again awarded first prize.

PEOPLES GAS & ELECTRIC CO.

L. W. Bradley, Correspondent

Manager R. F. Whitney inaugurated the opening of the bass season here with a large string of the well known Oswego bass, caught in the small hours of the morning.

Old Reliable Chief Learned has just completed a general overhauling of our large 500 K. W. steam turbine.

General Superintendent A. E. Bliss dropped in for his yearly inspection of our office and plant. We hope that this time he did not notice any glaring defects, which might have been in evidence on his previous journey.

Air-rifle Mundy is always in evidence when any strange dogs or live stock of any kind are to be seen on his much prided lawn. Bill and his friends have become quite accurate in the use of B. B. shot, which causes quite a calisthenic action on the part of the animal in the direct path of the missile.

Growth of Oswego

Oswego is well by the 25,000 mark and is crowding 26,000 according to figures received to date, showing an increase of 2,308 or nearly 10% over five years ago, and can be taken as a sure sign that the increase talked of during the past two or three years was no mere boast, but an accomplished fact. It is a known fact that larger cities will show the effect of hard times in their census returns. Syracuse, for example, has grown only about 7,000 in the last five years. This compared with 20,000 for the preceding five years shows how hard hit that city has been by the dull times. Percentage figures show Syracuse's gain as 5% and Oswego 10%, a very creditable showing for a city that has been practically at a standstill for twenty-five years.

Something About Oswego

The new Welland canal, connecting Lake Erie and Lake Ontario, is to be completed in 1918. Locks 800 feet long, 80 feet wide, with draft of 30 feet over sills.

There is no harbor in the American side of Lake Ontario that vessels over about 2,400 tons capacity can enter. Vessels on the upper lakes carrying 12,000 tons will be able to come through the new Welland canal, and by transferring at Kingston pass their cargoes down the St. Lawrence for export via Montreal.

Lake Ontario is about 120 miles long and on the American shore there is no harbor of refuge for the larger craft.

From a point on Lake Erie opposite Port Colbourne, to New York

via the New York State barge canal, the distance is 519 miles. From the same point via the new Welland canal, via Lake Ontario, through Oswego and the New York State barge canal, the distance is 510 miles.

The route via Oswego is not only shorter, but quicker, on account of the open run on Lake Ontario. The distance between the Hudson River and Oswego is 194 miles, of which only about 40 miles is narrow canal, the balance being either open lake or canalized river.

It has been determined that barges carrying 2,400 tons can traverse the New York State barge canal and that they can pass from New York through the Cape Cod canal to ports on the New England coast and southerly along the Atlantic coast.

Lake Ontario has a great depth of water, is free from islands and shoals, and all other obstructions between the new Welland canal and the foot of the lake.

The route via Oswega is the shortest, cheapest and quickest American water route from the Great Lakes to tide water.

New York State is spending approximately $150,000,000 in constructing the barge canal, and it would seem proper that the government should provide an adequate harbor at its northern terminus—Oswego.

New York State has appropriated $850,000 for building terminal docks at Oswego. One terminal dock, 1,000 feet long, 150 feet wide, with channels 100 feet wide, 25 feet deep on both sides, is now under construction.

The New York Central Railroad runs to Oswego. The Delaware & Hudson Railroad has a coal shipping trestle at Oswego. The New York, Ontario & Western and the Delaware, Lackawanna & Western Railroads have their northern terminals at Oswego. The northern terminus of the Lehigh Valley Railroad is but thirteen miles from Oswego.

Oswego is 177 miles from the anthracite coal fields of Pennsylvania.

In 1904 Montreal exported 8,260,250 bushels of grain; in 1914 Montreal exported 74,000,000 bushels of grain, practically all of which came from the northwest.

ROCKLAND LIGHT & POWER COMPANY

T. F. Odell, Correspondent

Mr. Newman E. Schriver, local representative of the new business department at our Haverstraw office, was married at the home of the bride's parents to Miss Florence, only daughter of Mr. and Mrs. Garret Springsteel of the Sweet Clover Farm on the New City road, at noon on Saturday, June 12th. The bride is a most attractive young lady of an exceedingly pleasing personality and popular among a wide acquaintance. The wedding was an exceedingly quiet affair, being most unostentatiously celebrated in the presence of a small but happy wedding party of intimate friends and relatives. There were no attendants and the ceremony was performed by the Rev. Andrew Schriver, father of the groom and a retired Methodist clergyman of Chester, N. Y. We extend to the bride and groom our sincere congratulations and well wishes for a life of unalloyed happiness.

On Saturday, July 3rd, we held our annual field day at Rockland Lake Park. The affair was a success in every particular. A more detailed report of this affair will be made in the August issue.

During our recent campaign on Frantz Premier Electric Cleaners we succeeded in disposing of forty-five

machines. This we consider a very satisfactory result in view of the fact that the camapign was of such short duration and the demonstrators in view of our widely scattered territory were unable to entirely cover our entire district. We are now arranging with the Frantz Premier Company to send demonstrators after July 1st to canvass the balance of the territory not covered in the campaign. We feel certain that this will result in the sale of a total of at least 100 machines.

During the four weeks' period ending June 12th we secured 134 applications for electric service for a total equipment of 2,180 sockets and 36¾ H.P. in motors.

SALEM ELECTRIC LIGHTING CO.

W. P. Verry, Correspondent

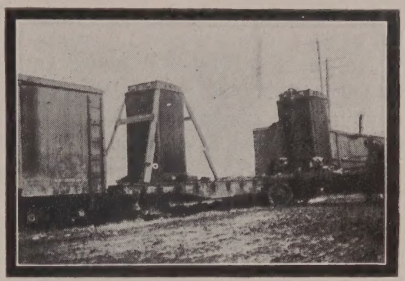
Murdock Circuit Testers

We recently purchased two Murdock Circuit Testers for use in the meter department. They consist of a telephone receiver, head piece, leads and small dry battery, and have proved to be great time savers in locating the right meter loop at installations where several loops are located together, especially when not marked. The testers also work in handily in locating the proper side to be grounded on new services, and in fact are a great help in testing out any installation.

A Correction

In the June issue of Tenney Service the article "Salem Since the Fire" was written up by F. C. Tobin of the new business department, and not by Mr. Verry as was stated.

The four large constant potential transformers that will supply most of the power at the Naumkeag Mills arrived last month. These babies are of 1250 K.V.A. capacity, weigh a little over twelve tons each, are



Naumkeag Transformers on cars

eleven feet high, six feet square, of Westinghouse make, and hold about 1,125 gallons of oil each. They were shipped two on a flat car, unskidded, and on this account the local express company engaged to cart them to the

Unloading Naumkeag Transformers from trains

mills, refused to handle them. However, under the direction of Mr. F. C. Hersom, they were successfully skidded by the company's men and the express company then safely transported them to their destination.

May was a banner month for taking on new consumers, the net gain in meters installed being 123. This brought the total number of meters in service up to 120 more than a year ago, which means that we have

taken on as many consumers as were lost on account of the fire, and about 120 besides.

On June 19th, A. J. Harty, who is in charge of the new construction work going on at the plant, entertained a party of about fifteen, consisting of heads of departments and foremen for the F. T. Ley Co., at his summer camp at High Rock, Bessoms Beach, Marblehead.

The party made the trip in autos, arriving about 5.30 p.m. It was the host's intention to have dinner out on the lawn, but a heavy shower coming up caused a change in this plan and the feast was served on the piazza instead. H. A. Cook was head chef, assisted by Messrs. Kingsley and Bossidy, and all present will vouch for the capabilities of this bunch when it comes to steaming clams and boiling lobsters.

Under the direction of Chief Engineer Barnard, a fruit punch was constructed, especialy for the ladies it was claimed.

John Aulin was unanimously elected master of ceremonies and made a remarkable speech which would have been longer if the crowd had not been so eager to get at the hot clams placed before them.

During dinner, the punch, which was ageing in the shade back of the house, mysteriously disappeared and great anxiety was shown by certain ones until it was found.

However, after much arguing, threatening and sleuth work by Master John, it finally appeared, only to again disappear to the accompaniment of many toasts.

During the evening there were songs by Messrs. Harty, Bossidy and Fitzpatrick, ably assisted by W. H. Barnard, who led the chorus. There were also numerous selections on the piano by Walter F. Shea, which were thoroughly enjoyed. A new Tenney song, introduced by Mr. C. W. Bossidy, entitled "Tra La La," made a big hit, it being very catchy.

The party broke up with cheers for the host, all agreeing that he had given them a bang up good time.

SPRINGFIELD GAS LIGHT CO.

Lloyd A. Galbraith, Correspondent

The regular quarterly meeting of the Relief Association was held at the club rooms Tuesday evening, June 15th, about thirty members being present. The only new business carried on was the insertion of a provision in the constitution and by-laws authorizing the treasurer to purchase flowers for a sum not to exceed $5.00 to be sent to the home of the deceased upon the death of a member. After the meeting refreshments were served and the evening was spent in playing cards.

During the water heater campaign on May we sold 2,485 heaters. The task of distributing and connecting these heaters has been quite a heavy one and has kept our distribution department men busy for several weeks. The campaign has proven a good "boom" for the plumbers of Springfield, as we have kept twenty-four at work for some time installing the heaters.

As a forerunner to the good games which are to come, our team played six innings on Tuesday, June 15th, with the United Electric Light Company's aggregation. The contest was "red hot" every minute and our team lost 3-2 when the game was called in the sixth because of the "short circuited" umpire.

Charles H. Tenney & Co.

Managers and Engineers

American Tar Co., Boston, Mass.

Barre and Montpelier Traction and Power Co., Montpelier, Vt.

Concord Electric Co., Concord, N. H.

Consolidated Lighting Co., Montpelier, Vt.

Exeter and Hampton Electric Co., Exeter, N. H.

Exeter, Hampton and Amesbury Street Railway, Hampton, N. H.

Fitchburg Gas and Electric Light Co., Fitchburg, Mass.

Haverhill Electric Co., Haverhill, Mass.

Malden Electric Co., Malden, Mass.

Malden and Melrose Gas Light Co., Malden, Mass.

Peoples' Gas and Electric Co. of Oswego, N. Y.

Rockland Electric Co., Closter, N. J.

Rockland Light and Power Co., Nyack, N. Y.

Salem Electric Lighting Co., Salem, Mass.

Springfield Gas Light Co., Springfield, Mass.

Suburban Gas and Electric Co., Revere, Mass.

The Bristol and Plainville Tramway Co., Bristol, Conn.